REPORT RESUMES

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THE FEASIBILITY OF A SYSTEMATIC STUDY OF MANPOWER REQUIREMENTS AND EDUCATION AND TRAINING PROGRAMS OF SELECTED HEALTH OCCUPATIONS.

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TO DETERMINE THE FEASIBILITY OF A STUDY, MEETINGS WERE HELD WITH GROUPS INCLUDING PATHOLOGISTS, RADIOLOGISTS, AND COMMUNITY HEALTH AND EDUCATIONAL LEADERS, 30 ADDITIONAL PERSONS CONCERNED WITH HEALTH SERVICES AND EDUCATION WERE INTERVIEWED, DISCUSSIONS WERE HELD WITH OTHER GROUPS AND INDIVIDUALS INTERESTED IN HEALTH MANPOWER RESEARCH AND PLANNING, AND A BIBLIOGRAPHY OF RELATED MATERIALS WAS COMPILED. THE MAJORITY OF THE INDIVIDUALS INTERVIEWED REACTED VERY POSITIVELY TO THE PROPOSED COMPREHENSIVE STUDY ALTHOUGH SOME EXPRESSED CONCERN REGARDING ITS SCOPE, ITS TIME REQUIREMENT, AND ITS RELATION TO EXISTING CONDITIONS IN THE HEALTH FIELD. THERE WAS GENERAL AGREEMENT THAT THERE ARE IDENTIFIABLE SHORTAGES OF CERTAIN TYPES OF PERSONNEL. A GENERAL PLAN WAS EVOLVED FOR A 64-MONTH COMPREHENSIVE STUDY TO MEET PRESENT AND PROJECTED HEALTH MANPOWER REQUIREMENTS. THE FOUR PHASES OF THE PLAN WILL CONSIST OF THE FOLLOWING TASKS--(1) DEVELOP A DETAILED WORK PLAN, (2) DETERMINE PRESENT AND FUTURE HEALTH SERVICE REQUIREMENTS, (3) DETERMINE THE PRESENT AND ESTIMATED FUTURE SUPPLY ON THE BASIS OF OUTPUT OF EXISTING EDUCATIONAL PROGRAMS, (4) ANALYZE SHORT-TERM NEEDS FOR SELECTED OCCUPATIONS, (5) IDENTIFY THE TASKS PERFORMED BY HEALTH SERVICE PERSONNEL, (6) ARRANGE THE TASKS ACCORDING TO LEVELS OF KNOWLEDGE AND SKILL AND IDENTIFY NEW, RESTRUCTURED, OR UNCHANGED OCCUPATIONS, (7) ESTIMATE MANPOWER NEEDS, (8) DEVELOP AN EDUCATIONAL PLAN, (9) CONDUCT PILOT EDUCATIONAL PROGRAMS, (10) EVALUATE EDUCATIONAL PROGRAMS AND DEVELOP A MECHANISM FOR CONTINUING EVALUATION, AND (11) PREPARE AND DISSEMINATE AN ANALYSIS OF THE COMPREHENSIVE STUDY. (JK)

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THE FEASIBILITY OF A SYSTEMATIC STUDY OF MANPOWER REQUIREMENTS AND EDUCATION AND TRAINING PROGRAMS OF SELECTED HEALTH OCCUPATIONS

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Forbes W. Polliard, Principal Investigator

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INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

November 30, 1966

VT003539

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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I. GENERAL PROJECT INFORMATION AND OBJECTIVES

I. GENERAL PROJECT INFORMATION AND OBJECTIVES

Grant Number: OEG-3-6-062444-2231

Title: The Feasibility of a Systematic Study of Manpower Requirements and Education and Training Programs of Selected Health Occupations

Investigator: Forbes W. Polliard, Executive Director
Indianapolis Hospital Development Association, Inc.

Grantee: Indianapolis Hospital Development Association, Inc.
in cooperation with Booz, Allen & Hamilton Inc.

Duration: August 1, 1966 through November 30, 1966

Purpose: The purpose of the study was to ascertain the feasibility of a comprehensive, systematic study of health manpower requirements, utilization, and related education and training in the Indianapolis metropolitan area. Objectives of the study were to:

- Determine the degree of interest and willingness of selected Indianapolis area health profession leaders to participate in the comprehensive study.
- Review other comprehensive studies of health manpower utilization and occupational education or training.
- Prepare a plan for conducting the proposed comprehensive study, if feasible.
- Involve selected community and health profession leaders in the development of a study plan.
- Ascertain the feasibility of utilizing the comprehensive study approach and results in other cities of comparable size.

II. THE PROJECT PROCEDURE

II. THE PROJECT PROCEDURE

A work plan was developed for the feasibility study. It provided for individual and group interviews in Indianapolis and elsewhere, the identification of research projects and available literature related to health manpower planning and the preparation of a final report. The feasibility study activities are described in the following sections.

1. Meetings Were Held with a Number of Groups Interested in Health Manpower Planning

(1) A group of Indianapolis-area pathologists, consultants from Booz, Allen & Hamilton, representatives of the Indianapolis Hospital Development Association, and other persons interested in the education and training of medical technologists and other laboratory paramedical personnel met to explore the planned approach to the feasibility study and to discuss possible changes in the present medical technology educational patterns. The possibility of centralizing responsibility for core curriculum in one institution and decentralizing the clinical experience portion of the program was considered. (See Appendix I for a list of those attending the meeting.)

(2) Indianapolis-area radiologists, consultants from Booz, Allen & Hamilton, representatives of the Indianapolis Hospital Development Association, and other persons interested in the education or training of radiological technologists also discussed mutual health manpower problems. The current shortage of health care personnel, particularly radiologists, was reviewed. It was noted that projected needs will undoubtedly cause increasing shortages at the technologist level in the near future. Centralization of the radiological

technology core curriculum in one institution and decentralized affiliations for clinical experience were discussed. (See Appendix II for a list of those who participated in these discussions.)

(3) The IHDA Executive Health Personnel Advisory Committee, representatives of Booz, Allen & Hamilton and the executive director and president of IHDA met to review the plan of approach to the current health manpower feasibility study in Indianapolis and urged that the study include appropriate consideration of opportunities for immediate action. The committee expressed its endorsement of the approach to the feasibility study and indicated its willingness and desire to participate actively in the project.

(4) An advisory committee participated in the initial development of a questionnaire designed to inventory and present the status of health manpower needs and resources in the Indianapolis area. The group reviewed and approved the general objectives which guided the drafting of the questionnaire. As a result of the discussion of the draft instrument, several changes and modifications were made. The Indianapolis Hospital Development Association decided to sponsor and fund the costs of gathering information on health manpower needs and resources. The questionnaire is presently in the final review stage. (See Appendix III for a list of the participants in the development of the questionnaire.)

(5) A group of persons interested in health manpower study and planning met informally during the 1966 American Hospital Association Convention in Chicago. The magnitude of the health manpower problem, existing plans designed to alleviate the shortage, and present studies related to health manpower research and planning were identified and discussed. (See Appendix IV for a list of participants in this discussion.)

(6) The Staffing of Health Care Facilities Committee of IHDA met to review and discuss the feasibility study. Representatives of Booz, Allen & Hamilton reviewed progress of and discussed future plans for completing the feasibility study. The committee suggested that, where possible, short-range opportunities for increasing manpower resources in the Indianapolis area should be identified.

(7) Representatives of Booz, Allen & Hamilton have met several times to review the progress of the feasibility study and to discuss the specific application of the firm's capabilities during the feasibility phase of the project. Individuals from the institutional management division (which has primary responsibility for the project), the operating methods division, the operations research division, and the computer systems division all participated actively in the discussions.

(8) Representatives of the Indianapolis Hospital Development Association and of Booz, Allen & Hamilton, Mr. Robert Herman of the Bureau of Research of the U. S. Office of Education, invited representatives of the Indianapolis news media, and more than 30 community health and educational leaders met to review the progress of the feasibility study on September 26, 1966 in Indianapolis. A complete list of persons attending this meeting is attached as Appendix V. The text of a newspaper article covering the meeting is attached as Appendix VI.

(9) A related study which will complement the comprehensive study has been initiated. To assemble baseline cost information, the Indianapolis Hospital Development Association has undertaken a study of health education and training program costs in the Indianapolis area. The firm of George S. Olive and Company, public accountants in Indianapolis, is conducting the study.

2. More than 30 Persons Were Interviewed by Booz, Allen & Hamilton Staff from August 1, 1966 through October 31, 1966. (See Appendix VII for a List of Persons Interviewed)

Individuals in the Indianapolis area and elsewhere were interviewed. Chapter III of this report reflects specific opinions and comments made by persons interviewed.

3. Discussions Were Scheduled with Other Groups and Individuals Interested in Health Manpower Research and Planning

In order to identify related work currently under way or planned, Forbes W. Polliard, principal investigator, and a Booz, Allen & Hamilton consultant met with the following individuals or groups during the week of September 12, 1966.

Russell Frazee, Coordinator
Health Research Project
Board of Education
Pittsburgh, Pennsylvania

William Lentz
Health Research Project
Board of Education
Pittsburgh, Pennsylvania

Michael Sincevich
Health Research Project
Board of Education
Pittsburgh, Pennsylvania

Richard Franzen
Administrative Assistant to
Congressman Andrew Jacobs, Jr.
Washington, D. C.

Peter Bing, M.D.
Presidential Health Manpower Commission
Washington, D. C.

David Bushnell, Director
Division of Adult and Vocational Research
Bureau of Research, Office of Education
Washington, D. C.

David Hoover, Statistician
Manpower Resources Branch
Division of Community Health Services
Public Health Service
Washington, D. C.

Richard Hall
Manpower Resources Branch
Division of Community Health Services
Public Health Service
Washington, D. C.

Richard Jelinek, Ph.D.
Hospital Systems Research Group
University of Michigan
Ann Arbor, Michigan

Karl G. Bartscht, Project Director
Hospital Systems Research Group
University of Michigan
Ann Arbor, Michigan

Barton R. Burkhalter, Executive Director
Community Systems Foundation
Ann Arbor, Michigan

John Griffith, Associate Director
Program in Hospital Administration
University of Michigan
Ann Arbor, Michigan

Darwin Palmiere, Associate Professor
School of Public Health
University of Michigan
Ann Arbor, Michigan

Robert Kinsinger, Director of Education
Kellogg Foundation
Battle Creek, Michigan

4. A Survey of Publications and Articles Related to Health Manpower Research and Planning Has Been Compiled and Is Attached as Appendix VIII

III. RESULTS, CONCLUSIONS, AND RECOMMENDATIONS OF THE FEASIBILITY STUDY

III. RESULTS, CONCLUSIONS, AND RECOMMENDATIONS OF THE FEASIBILITY STUDY

1. General Findings of the Feasibility Study Are Summarized in the Following Paragraphs

Health services are receiving increasing attention at national, state, and local levels. People today regard health care, along with the traditional basic needs for food, shelter, and clothing, as a necessity of life. Because of technological, economic, and social changes, health means more than freedom from disease or untimely death; it means optimum physical, mental, and social efficiency and well-being. In response to this emerging concept of health in America, far-reaching and dramatic changes are taking place. New and more demanding national health goals have evolved and broad and comprehensive new programs have been established which will significantly affect the future organization and delivery of health services, as well as demand for services.

The value ascribed to health in our nation has increased greatly since the end of World War II. This assertion is supported by the increasing role and financial involvement of government at all levels in the provision of health services. Of equal significance is the fact that, according to the 1965 Economic Report to the President, the percentage of the gross national product spent for health-related services increased from 3.5% in 1930 to about 6% in 1965. In 1965, almost $40 billion were spent in the nation for health-related services.

As the value of health has increased, there has been a concomitant increase in demand for and utilization of health services. Expansion of the third-party mechanism to cover a broader segment of the population has also encouraged increased utilization of health services. Increased utilization of health services has resulted in the need for more health manpower. Furthermore, the increasing complexity and specialization of health services appears to require more highly skilled health personnel at almost all occupational levels.

The number of people employed in the health services is increasing dramatically. In 1950, there were 1.6 million health service workers; in 1965, the number had grown to approximately three million, or 4% of the total labor force in the United States. The number of workers in the health field increased at a rate of 4% per year between 1950-1960.* A recent study of health manpower requirements conducted jointly by the American Hospital Association and the Public Health Service identified the need for 275,000 additional professional and technical personnel to provide optimum patient care in the nation's hospitals.** This estimated need amounts to an increase of approximately 20% over present staffing.

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*The above information was taken from a published report of the proceedings of the Department of Labor - Department of Health, Education, and Welfare Conference on Job Development and Training for Workers in Health Services in Washington, D. C., February 14-17, 1966.

**Reported in the November 11, 1966 American Hospital Association's weekly newsletter.

The study does not take into consideration nonhospital needs for health personnel. The demand for more workers possessing higher levels of knowledge and skill is expected to increase in the years ahead.

Many factors influence health manpower needs. They are complex and interrelated, and include:

- Increased spending for health services.
- Increased sophistication of demand.
- Medical and scientific advances.
- Expansion of health insurance and welfare programs.
- Increasing life span.
- Population increases.
- Increasing costs of medical care.
- Increasing role of government in health.

There is general agreement that there are identifiable shortages of certain types of personnel in the health field. The number of qualified health personnel entering the field seems to have been outdistanced by demand, and serious shortages have been described. Estimates in terms of actual numbers by health occupation vary greatly. Some observers attribute the apparent shortages to improper utilization and distribution of various types of health workers. There is increasing evidence to support the need for careful and thorough study of the range of tasks performed by health workers in the provision of health services to determine and evaluate:

- The division of labor that exists between the various health occupations.
- The knowledge and skill levels required to perform the range of tasks.
- The education and training required to provide this knowledge and skill.

The recent report of the National Commission on Community Health Services (which was comprised of national health leaders and which devoted about four years to its work) recognized the need for comprehensive community studies of health manpower requirements, utilization, and education and training based on the health needs of the population to be served. The report suggests that:

> "Before considering the methods through which an adequate supply of health personnel can be trained to do the job, it is necessary to take an honest look at what the job is. The job is to deliver quality, comprehensive health services to all citizens. Who does this? Who should do it? Wise answers are not likely to be found if we seek them only in the wilderness of the so-called population explosion. The size of the health manpower problem should not be measured solely by the size of the population, but rather by the dimensions of actual health needs of the population - some of which, obviously, are enlarged by size. Demographic and other pertinent data are useful as guides, but health agencies should determine the personnel required to carry out their programs effectively by establishing the nature of the problems, the goals to be attained, and the number and type of personnel needed to attain these goals."

Indianapolis-area health leaders aspire to provide a comprehensive range of high quality services for people in the area. New programs and services are being developed where gaps have been identified. Facilities are being planned and financed. The community is vitally concerned about marshaling all the resources needed to meet the health needs of its people and recognizes the critical need for adequate numbers of trained and experienced health workers.

The Indianapolis Hospital Development Association was organized nearly 15 years ago and has accepted responsibility for the development of comprehensive health services in the Indianapolis area. A description of the objectives and past projects of the association is included in Appendix IX. The association is vitally concerned about the shortage of health manpower in the Indianapolis area and what can be done to increase the supply and improve the utilization of this important human resource.

Approximately two years ago, the association sponsored a comprehensive study to ascertain the nursing resources that will be needed in the community by 1975 and how they could be provided. An inventory was taken of the interest and plans of approximately 11,000 area high school seniors for entering specific health professions, including nursing. The lack of significant numbers of high school seniors who were planning to enter several of the health professions was apparent.

Questions raised as a result of the nursing study gave indications of other health manpower shortages in the Indianapolis area. The planned expansion of physical facilities, new and pending federal legislation, and other factors have encouraged the association to consider undertaking a comprehensive, detailed study of health manpower requirements in the Indianapolis area.

The recruitment, education, and re-education of qualified personnel in the health field will require a comprehensive re-examination of existing plans, policies, and practices affecting manpower utilization and education and training.

2. The Following Significant Comments and Observations Were Made by Persons Interviewed during the Feasibility Study

The majority of the individuals interviewed reacted very positively to the proposed comprehensive study. Most commented on the seriousness of existing and projected manpower needs in various health occupations. The following were often cited as factors affecting the present and expected future requirements:

- Increasing demand for health services.
- Present gaps in availability of health services.
- Expansion of physical facilities.
- Development of new programs and services.
- Increasing specialization and demand for specialists' services.
- Lack of core curriculum for selected health occupations deters horizontal mobility.
- Little opportunity for vertical mobility in the health occupations.
- Lack of adequate compensation in the health field.
- Unimaginative recruitment efforts.
- Accelerating growth of the population.
- Attractive alternative employment opportunities for men and women, including choice of second career opportunities.
- Earlier marriage patterns for women.

Several suggestions for meeting health manpower needs in the Indianapolis area were made:

- The total pool of health workers should be expanded by increasing and improving recruitment efforts and by attracting and retaining higher quality personnel.
- Compensation levels for health occupations should be raised.
- The productivity and quality of workers in the health field should be increased through improved utilization, education, in-service training, incentives, and supervision.
- Flexibility in the use of health manpower should be increased by actively encouraging revisions of restrictive licensing requirements, other laws, and standards of various professional certifying bodies.
- The extent of undertraining or overtraining should be identified by comparing actual work requirements for jobs in the health field with existing educational or training objectives and requirements.
- Vertical mobility opportunities within the health system should be developed for personnel who may be qualified to make "career ladder" advances.
- The use of human and financial resources should be optimized through improved coordination and development of educational or training programs among educational and service-oriented organizations.

Several people interviewed suggested that the plan of approach be broadened to include determination of current demand for health services in the Indianapolis area and identification of unmet needs for health services. They recommended that demand be measured by the present volume of services provided and that Indianapolis-area health service data be compared with nationwide figures to produce estimates based on the volume of services required presently and expected to be needed in the future. Though this suggested approach adds another dimension of complexity and time to the comprehensive study, it appears that the development of a sound plan for meeting health manpower needs in the Indianapolis area will require its inclusion in the design of the study.

A number of persons interviewed expressed concern regarding the feasibility and desirability of the comprehensive study because of:

- The present extent of occupational fragmentation within the health field.
- The traditional orientation of professional health groups which set educational and program accreditation standards.
- The comprehensive, complex scope of the proposed study.
- The need to approach meeting health manpower requirements on an immediate, "crash" basis.

Persons interviewed in the Indianapolis area recognized the need for additional qualified personnel in the health field. Most offered the opinion that the Indianapolis area must plan imaginatively to meet its health manpower needs. They observed that the task of developing the needed health personnel resources, though difficult, must be undertaken and pledged their willingness to participate and assist in the comprehensive study.

3. The Following Projects or Experience of Existing Organizations Appear To Have the Greatest Potential Applicability to the Comprehensive Health Manpower Study in the Indianapolis Area

(1) The Community College Health Careers Project
University of the State of New York
State Education Department
New York, New York
Dr. Sheldon Steinberg, principal investigator

- The approach used in New York to identify the skills and knowledge required in selected health occupations could be used with refinement and modification in the Indianapolis comprehensive study.

(2) Health Research Project
Board of Education
Pittsburgh, Pennsylvania
Russell Frazee, coordinator

- This project has involved the identification of job entry specifications and the development of related curricula for selected health occupations. The possible use in the Indianapolis project of self-teaching techniques and programs developed by the researchers in the Pittsburgh study should be evaluated further.

(3) Hospital Systems Research Project
Industrial Systems Research Laboratory
Institute of Science and Technology
Department of Industrial Engineering
University of Michigan
Ann Arbor, Michigan
Karl G. Bartscht, project director

- This project has resulted in the formulation of methods for studying and developing staffing plans in hospitals. The approach could be adapted for use in the Indianapolis comprehensive study.

(4) Booz, Allen & Hamilton Inc.
Operating Methods Division
135 South LaSalle Street
Chicago, Illinois
Karl Hansen, vice president

- The operating methods division has substantial experience in job analysis and evaluation in the health field. Its methodologies could be used at the appropriate time in the comprehensive study.

(5) Health Manpower Literature Search Project
Department of Hospital Administration
University of Michigan
Ann Arbor, Michigan

- This group's report on research projects under way in the health manpower field could be used to identify other research and planning which may expedite the process of planning to meet health manpower needs in the Indianapolis area.

4. The Feasibility Study Supports Several General Conclusions

(1) There is serious concern about meeting health manpower needs in the Indianapolis area.

(2) Health service and education leaders in Indianapolis are cognizant of the need to develop additional health manpower resources. They are interested, willing, and enthusiastic about taking whatever action is required to ensure adequate numbers of health personnel in the future.

(3) Several national leaders in the health field also responded positively to the concept of the proposed comprehensive study and endorsed further work on it.

(4) The comprehensive study is desirable and feasible and the plan of approach can be executed successfully in the Indianapolis area.

(5) Successful execution of a comprehensive study of health manpower needs in the Indianapolis area should result in the development of a model approach to health manpower planning which could be applied in other cities of comparable size. There are more than 40 cities in the population range of 500,000 to 1,500,000 which could apply the Indianapolis approach to their health manpower planning efforts.

5. The Following Recommendation Is Based on the Conclusions of the Feasibility Study

A comprehensive, systematic study of health manpower requirements, utilization, and education and training programs for selected health occupations should be undertaken in the Indianapolis metropolitan area. A plan for the comprehensive study follows.

IV. A GENERAL PLAN FOR THE COMPREHENSIVE STUDY PROJECT

IV. A GENERAL PLAN FOR THE COMPREHENSIVE STUDY PROJECT

1. Purpose of the Project

The purpose of the comprehensive project is to develop an orderly plan for meeting present and projected health manpower requirements in the Indianapolis metropolitan area. To the extent possible, the study will relate health manpower planning to the volume of health services currently utilized, needed, or expected to be needed in the years ahead.

Short-range opportunities for increasing the supply of scarce health personnel will be identified and action-oriented plans developed to meet immediate acute manpower needs. The study will also include the development of long-range plans to meet future health manpower requirements.

The general plan for the comprehensive project which follows sets forth an approach for planning to meet changing health service and health manpower needs so that change will occur as directed rather than as the result of haphazard reaction. The project process is structured to ensure that planning and action can be linked effectively to achieve the best possible over-all results for the community.

2. Objectives of the Project

The primary objectives of the comprehensive study of health manpower in the Indianapolis area are:

(1) To determine present demand and project future demand and requirements for health services.

(2) To determine the present and estimated future supply of health personnel.

(3) To relate demand and need for health services to health manpower requirements, utilization, and education and training.

(4) To analyze the organizational structure for the delivery of health services as it affects manpower requirements.

(5) To identify present health personnel utilization by systematically studying the roles and responsibilities of selected existing health professions and occupations.

(6) To identify new, restructured, or unchanged selected health occupations according to the most effective grouping and assignment of tasks and the minimum level of knowledge and skill required to perform them.

(7) To identify the curriculum content and sequence of study required to prepare persons for selected health occupation classifications.

(8) To provide greater opportunities for persons to enter selected health occupations where their levels of skills can contribute to the quality and amount of health care and services.

(9) To provide opportunities for "career ladder" advances within health occupational fields, so that qualified persons may progress professionally in an orderly fashion.

(10) To coordinate educational and training programs of selected health occupations and professions so that persons can increase their skills and abilities with minimum duplication of content or unnecessary loss of time or expense.

(11) To promote the team approach to health care and service through systematic integration and coordination of functional assignments with educational and training programs for selected health occupations and professions.

(12) To determine the levels of skills and abilities required of instructors in educational and training programs for selected health occupations.

(13) To translate the recommended functional assignments and educational and training programs of selected health occupations into pilot programs which can be analyzed and modified as necessary.

(14) To evaluate the effect of the recommended functional assignments and educational and training programs on the quality and amount of health care and service that is required or desired.

(15) To develop a plan of action and a final report that will permit other urban areas to benefit from the study of manpower requirements and educational and training programs of selected health occupations in the Indianapolis metropolitan area.

3. General Plan for the Study

There is convincing evidence of the need for a comprehensive study of health manpower requirements, utilization, and education and training. Conceivably, broad application of the results of such a study could make a significant contribution to the solution of health manpower problems at local, state, and national levels. Thus, the Indianapolis area has a unique opportunity to make a substantial contribution to progress in health manpower planning, utilization, and education and training.

The proposed study will be a complex and difficult undertaking. It will require the effective cooperation of a study team with selected Indianapolis community groups over the more than five-year duration of the project.

The project will have four distinct phases. Phase I will consist of Task 1; Phase II will include Tasks 2, 3, and 4; Phase III will include Tasks 5, 6, and 7; and Phase IV will consist of Tasks 8, 9, 10, and 11. A brief description of each major task follows.

TASK 1

The major participants in the study will devote approximately four months to the development of a detailed work plan for the comprehensive study before subsequent tasks are begun. The need for thorough planning of a five-year undertaking of the scope and magnitude proposed cannot be overemphasized. Completion of the study within the projected time schedule, achieving effective utilization of study staff, and maintaining control of costs will require orderly scheduling of work assignments and identification of critical points in the over-all study process.

Refined methods (such as PERT or critical path techniques) will be employed to assure the best possible management of the comprehensive study. The interrelationship of events and activities will be identified in detail and presented graphically in a network path. The network path will depict the chain of sequential events and activities required to move from the starting point of the study to its completion. Time estimates for each activity will be shown as well as the necessary resources to complete the activity. Critical control points will also be identified. The network system will be monitored continuously for control purposes and modified appropriately to reflect changes in conditions or plans.

General methodology and data collection and analysis plans for the entire project will be developed by the study staff during Task 1. Time and cost estimates and the staffing plan will be reviewed and refined by major task.

Because of the empirical nature of the study, detailed planning for subsequent phases will usually follow completion of the preceding phase. Therefore, while general plans for the entire study will be refined during Task 1, particular attention will be given to the required detailed planning for Tasks 2, 3, and 4 of Phase II and Task 5 of Phase III. The latter task will not be dependent on the results of Phase II and will be started during Phase II.

TASK 2

The objective of Task 2 is to determine the present demand and project future demand and requirements for health services in the Indianapolis area. Development of a comprehensive, flexible plan for meeting present and anticipated future manpower requirements should be directly related to services either presently provided, needed, or planned for future delivery.

Task 2 will include identification of the community's pattern of organization for the delivery of comprehensive health services. In addition, specific programs and services, present staffing, available facilities and sources of financing will be described. The volume of inpatient, ambulatory, and public health services will be classified according to major providers of service - i. e., hospitals, nursing homes, health and welfare agencies, health programs in industry, private medical practitioners, and other agencies.

Making an inventory of available services will be a complex and time-consuming undertaking. It will require continuing effective co-operation of health service organizations in the area with a highly skilled multi-disciplinary team which will assume major responsibility for the collection and analysis of data. Carefully designed sampling techniques utilizing refined data collection instruments will be employed where appropriate, to secure the information needed to complete Task 2.

A representative advisory group of community leaders will be selected to work closely with the team as it proceeds with the inventory. Authorities outside the Indianapolis area will be requested to participate in the final analysis of information and in the development of conclusions and recommendations to improve the range and quality of health services in the Indianapolis area.

TASK 3

The objective of Task 3 is to determine the present and estimated future supply of health manpower by identifying the present and projected output of existing education or training programs for selected health personnel in the Indianapolis area. Programs will be classified by type (i. e., academic, clinical, combined, continuing education, in-service training) and by ownership of sponsoring organization. Specific information about selected programs such as student capacity, enrollment history, and number completing programs will be developed. Faculty staffing patterns, education or training facilities, and financial resources will also be described.

Methods used to collect and analyze data during the Indianapolis nursing resources study referred to previously will be refined and employed where feasible. A copy of a questionnaire used in the nursing resources study is included as Appendix X.

An advisory group of community educators will be appointed to work closely with the study staff participating in Task 3. Educational consultants from outside the Indianapolis area will be used during the final analysis of information and in the preparation of conclusions and recommendations.

TASK 4

The manpower needs for selected existing health occupations will be determined in Task 4. Providers of health services in the community will be requested to identify current manpower needs and to project future requirements for five years. Data gathering instruments similar to those used in the Indianapolis nursing resources study will be used. Appendix XI is a copy of a questionnaire used in the nursing study to identify projected manpower requirements. Concurrently, the study staff will develop health manpower need estimates for selected health occupations based on standard ratios per population unit, and industrial engineering methods. Where possible, five-year projections will be made. In-and-out migration of health workers will be considered. Estimates of the providers of service and the study staff will be compared and analyzed, and used to estimate present and future health manpower requirements for the area based on existing occupational classifications. Particular emphasis will be given to occupations in which critical manpower shortages exist.

The estimated need for personnel in selected health occupations will be compared with the expected output of education and training programs. An action-oriented plan to exploit short-range opportunities to increase the supply of health workers through expansion of education or training programs for existing health occupations will be developed and implemented. Plans will give high priority to meeting acute manpower requirements.

A detailed plan for Phase III will be prepared as the final step of Phase II.

TASK 5

The development of a sound and imaginative long-range plan to meet expected future health personnel needs will require an intensive examination of how present personnel are being utilized and an evaluation of the appropriateness of their utilization. In this process, the specific assignment of responsibility for the performance of tasks in the delivery of comprehensive health services will be studied critically.

The tasks currently being performed by personnel providing direct health services to people will be identified and analyzed systematically. Related tasks will be grouped according to the nature of the work or function to be performed. The level of knowledge and skill required to perform health service tasks will also influence the grouping of tasks. Where possible, expected new health service tasks will be considered in the task grouping process.

The success of Task 5 will be dependent upon a well organized, effective multi-disciplinary effort by the staff assigned. The specialized industrial engineering skills needed to systematically identify health service tasks will be complemented by the understanding and knowledge of health professionals who are intimately familiar with the health service environment.

TASK 6

The objective of Task 6 is to identify new, restructured, or unchanged selected health occupations. The identification will be based on the appropriate grouping of related tasks and the determination of minimum levels of knowledge and skill required to perform in health occupations providing direct health services.

The staff assigned to complete Task 6 will also have the needed multi-disciplinary capabilities identified in the description of Task 5.

TASK 7

The objective of Task 7 is to estimate manpower needs per population or service unit for 15 years at five-year intervals for selected health occupations, including new, restructured, or unchanged types. To the extent possible, estimates will be based on occupational categories which reflect the grouping of tasks developed in Task 6. Quantitative estimates of comprehensive health service requirements will be made and related to health personnel needs where possible. New or expanded requirements for health services will be considered.

Detailed plans for Phase IV of the study will be prepared as the final step of Phase III.

TASK 8

A comprehensive long-range plan for the education and training of selected health occupation groups will be prepared for the Indianapolis area. The identification of new, restructured, and unchanged health occupational categories will require a thorough analysis of the existing education or training programs to ensure that curricula are designed to provide the education or training selected health personnel need, to perform assigned tasks at a quality level.

Certain programs will need to be modified and some probably discontinued. Selected additional programs will be established for new health occupations.

Tasks 7 and 8 will be closely coordinated.

TASK 9

The objective of Task 9 is to establish and conduct pilot education and training programs for preparation of personnel for selected restructured or new health occupations. Following identification of specific pilot programs, the curriculum content and the sequence of study required to prepare persons for selected restructured or new health occupations will be determined. Opportunities for developing core courses for more than one occupational classification will be studied. Pilot programs will be organized and students selected.

During Task 9, efforts will be made to secure commitments from several groups. The cooperation of certification and licensing agencies will be solicited. Providers of health services who are willing to realign task assignments to accommodate persons prepared for new or restructured health occupations will be identified. Employers will be asked to provide "career ladder" advancement opportunities within health occupational fields.

TASK 10

The objectives of Task 10 are to evaluate the established pilot education and training programs where possible and to develop an appropriate mechanism for continuing program evaluation. On-the-job performance of individuals trained in the pilot programs will be reviewed and evaluated. Where necessary, course content modifications will be made to ensure that the education or training programs are preparing individuals effectively for job requirements.

Plans will also be made to include traditional education and training programs in the evaluation process.

TASK 11

The objectives of Task 11 are to prepare and disseminate an analysis of the comprehensive study. Other communities and regions across the nation will thus have access to the detailed results of the study.

* * * *

Proposed steps of the plan for the comprehensive study are shown in Exhibit I, at the end of this chapter. Eleven major tasks are identified, and the steps necessary to accomplish the tasks are described in general terms where possible. The scope of each step is also identified.

The anticipated time required to complete each major task is shown in Exhibit II, following Exhibit I. The four phases of the project are also shown. The estimated time required to complete the entire project is 64 months.

A simple network system, depicting the interrelationships of the eleven major tasks is demonstrated graphically in Exhibit III, following Exhibit II. The major steps to be accomplished in each of the eleven tasks are also identified.

The study staff needed to accomplish each task is listed by discipline in Exhibit IV, which follows Exhibit III. A permanent project staff should be provided by IHDA and used as needed during the entire study. This staff should include a coordinator of research activities, research assistants, technical assistants, a statistician, a programmer, and several secretaries.

The project also should have a full-time director. In addition, because of the complexity and scope of the project, the special skills of a variety of disciplines will be used intermittently to ensure effective and economical utilization of professional staff time. Four project coordinators representing several special disciplines will be required and are listed immediately following "project coordinators" in Exhibit IV, Task 1.

Individuals from community agencies involved in either the provision of health services or the education of health personnel will also participate in selected aspects of the project. Committees representing various community interest groups will be selected to advise the staff during the course of the study.

Consultants who can provide needed special skills will also be used extensively. Selective use of this source of talent will permit the best possible application of existing financial and personnel resources.

Exhibit V, following Exhibit IV, shows the estimated man-days required for the project by phase and total estimated man-days for the entire 64-month study.

Detailed estimated staffing requirements for the initial 20-month period of the project are presented in Exhibit VI, which follows Exhibit V. Phases I and II and Task 5 of Phase III will be completed during the 20-month period.

Exhibit VII, following, shows the estimated total project budget for professional time costs by phase. The total estimated professional time cost of the project is approximately $2,900,000.

A detailed budget estimate of professional time costs for the initial 20-month period of the study is shown in Exhibit VIII, which follows Exhibit VII. The total estimated professional time cost for the first 20 months of the project is approximately $972,000.

EXHIBIT I (1)

INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

DETAILED IDENTIFICATION OF MAJOR TASKS AND STEPS FOR THE COMPREHENSIVE STUDY OF HEALTH MANPOWER IN THE INDIANAPOLIS METROPOLITAN AREA

Step	Description of the Step	Scope of the Step
	PHASE I	
TASK 1: DEVELOP A DETAILED WORK PLAN FOR THE COMPREHENSIVE STUDY PROJECT		
1. Select key personnel for the study.	Key study personnel will be selected.	Two or three of the key study participants will be employed.
2. Develop detailed plans for the comprehensive study where possible.	Detailed plans for the comprehensive study will be prepared where possible.	Specific methodology, data collection instruments, data analysis plans, and a control system for the over-all study will be developed. Time, personnel, and cost estimates will be reviewed and refined.
3. Submit the detailed work plan for approval.	The detailed work plan will be submitted for approval.	All agencies involved in funding the project will approve selected portions of the final study design, methodology, time schedule, staffing requirements, and estimated costs.
4. Prepare a detailed written critique of Task 1.		

EXHIBIT I (2)

PHASE II

TASK 2: DETERMINE THE PRESENT DEMAND AND PROJECT FUTURE DEMAND AND REQUIREMENTS FOR HEALTH SERVICES IN THE INDIANAPOLIS METROPOLITAN AREA*

Step	Description of the Step	Scope of the Step
1. Identify the providers of comprehensive health services and the volume of services currently utilized in the Indianapolis area.	The providers of health services will be identified and volume of services inventoried. Appropriate statistical and sampling methods will be employed.	The demand for inpatient, ambulatory, and public health services will be identified by major provider of health services including hospitals, nursing homes, public health and welfare agencies, industrial health organizations, private medical practitioners, and other groups. Where possible, services utilized will be grouped by ownership (public, proprietary, voluntary).
1.1 Identify hospitals and the volume of patient services provided.	Hospital utilization data will be compiled. Objectives, ownership, organizational structure, programs and services,facilities, staffing and financial resources will also be identified.	Hospitals will be grouped by type (general, special, psychiatric, long-term, short-term).
1.2 Identify nursing homes and the volume of patient services provided.	Nursing home utilization data will be compiled and objectives, ownership, organizational structure, programs and services, facilities, staffing, and financial resources identified.	Nursing homes will be grouped by type (chronic, convalescent) and by organizational relationship (hospital associated, non-associated).
1.3 Identify health and welfare agencies and the volume of services provided.	Health and welfare agency utilization data will be compiled. Objectives, ownership, organizational structure, programs and services, facilities, staffing, and financial resources will also be identified.	Agencies will be classified by function (including environmental sanitation, ambulatory preventive services, home care, school health, social welfare).

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*The full spectrum of health services including prevention, diagnosis, treatment and rehabilitation will be considered. Where possible, the volume of health services will also be identified by age, sex, race, and economic level of the consumer.

EXHIBIT I (3)

Step	Description of the Step	Scope of the Step
1.4 Identify industrial health services in the area and the volume of services provided.	Use of industrial health services will be identified and objectives, organization programs and services, facilities, staffing, and financial resources described.	Industrial health activities will be classified by type of industry (manufacturing, nonmanufacturing).
1.5 Identify private medical practitioners in the area and the volume of services provided.	Private medical practitioners will be identified and the volume of services they provide determined through the use of appropriate statistical and sampling methods.	Private medical practice will be classified by type of practice (solo and group) and by specialty (including medicine, surgery, pediatrics, obstetrics, gynecology, and others). Volume will be expressed in terms of office visits, hospital visits, and number of procedures.
1.6 Identify other health services and the volume of services provided.	The volume of other health services will be determined.	Other services will be classified by ownership (public, proprietary, voluntary) and by type.
2. Analyze the availability and accessibility of health services in the area provided by hospital, nursing home, health and welfare agencies, industrial health groups, private medical practitioners, and others.	Service gaps or overlaps, and strengths and weaknesses will be identified.	The full range of services will be reviewed including preventive, diagnostic, therapeutic and rehabilitative services. Age, sex, race, and economic class of the consumer will be considered. Comparisons will be made with appropriate national quantitative indices of adequate levels of health services.
3. Estimate future requirements for health services.	An assessment of expected future needs will be developed.	The impact of advances in medical science, automation, rising income levels, the expanding role of government, and other factors will be considered as well as existing gaps in health services.
4. Prepare a comprehensive plan for development of needed health services in the Indianapolis metropolitan area and identify related health manpower needs.	The comprehensive plan will establish priorities and be action-oriented.	The over-all objectives of the plan will be enumerated and plans to achieve specific program, staffing, organization, facilities, and financing goals will be formulated.
5. Prepare a detailed written critique of Task 2 of the study.		

EXHIBIT I (4)

Step	Description of the Step	Scope of the Step
TASK 3: DETERMINE THE PRESENT AND ESTIMATED FUTURE SUPPLY OF HEALTH MANPOWER BY IDENTIFYING THE PRESENT AND PROJECTED OUTPUT OF EXISTING EDUCATIONAL OR TRAINING PROGRAMS FOR SELECTED HEALTH PERSONNEL IN THE INDIANAPOLIS METROPOLITAN AREA		
1. Identify and describe the educational and training programs in the Indianapolis metropolitan area.	The educational or training programs will be described.	Programs will be classified by ownership of sponsoring organization (public, proprietary, voluntary) and by type (clinical, academic, combined, continuing, in-service).
1.1 Inventory the existing educational or training programs.	A listing of specific programs by occupational field will be developed and will provide historical information about each program, such as student capacity, enrollment levels, and number completing programs.	The output of formal* and informal programs will be identified.
1.2 Identify the objectives of programs.	The objectives of programs will be identified.	The objectives of individual programs will be described.
1.3 Describe the organization of the educational and training programs.	The relationship of organizations engaged in the education or training of health manpower will be identified.	Existing relationships of primary educational institutions with primary service institutions will be reviewed. Programs sponsored jointly will be identified.
1.4 Inventory the current supply of teaching staff.	The number of full- and part-time academic and clinical faculty will be determined.	Faculty recruitment plans, personnel policies and practices, faculty education and experience requirements will be identified.
1.5 Identify existing facilities used for educational and training activities.	Facilities in primary educational institutions and in primary service institutions will be identified.	Academic and clinical facilities will be identified.
1.6 Identify existing financial resources for educational or training programs.	Funds available to finance eductional or training costs will be identified.	Public and private sources of capital and operating funds for educational and training programs will be identified.

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*Accredited programs or programs actively seeking accreditation.

Step	Description of the Step	Scope of the Step
2. Analyze the educational and training programs in the Indianapolis metropolitan area.	The analysis will take place concurrently with the execution of Task 3, Step 1.	The analysis will include consideration of the factors used in the sub-steps of Task 3, Step 1.
3. Determine current and project future output levels of selected health personnel by educational or training program.	Output levels for selected health occupations will be determined and projected.	Output levels will be limited to educational or training programs for selected health occupations involved in providing direct health services. Future plans of organizations engaged in education and training of selected health personnel will be considered.
4. Prepare a detailed written critique of Task 3 of the study.		

TASK 4: DETERMINE AND ANALYZE SHORT-TERM NEEDS PER UNIT FOR SELECTED HEALTH OCCUPATIONS IN WHICH CRITICAL SHORTAGES EXIST*

Step	Description of the Step	Scope of the Step
1. Identify health manpower requirements by employer for the present volume of services provided.	Workers in the health field will be identified by existing occupational classification by requesting health personnel employers to complete a questionnaire.	Employers will be classified by ownership (public, proprietary, voluntary), by type (hospitals, nursing homes, health and welfare agencies, industry, private medical practitioners, and others), and by service function where possible (inpatient, ambulatory, public health). Employers will be requested to provide present requirements and estimate needs five years in the future.
2. Develop health manpower need estimates for selected health occupations based on standard ratios per population unit.	Ratios of health workers per population unit by occupation will be developed.	Estimates of need will be made by existing occupational categories.
3. Develop health manpower need estimates based on industrial engineering methods and standards.	Need estimates will be developed based on industrial engineering methods and standards.	Needs will be estimated by existing occupational categories.

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*Task 4 will be coordinated closely with Tasks 2 and 3 to avoid duplication of effort.

EXHIBIT I (6)

Step	Description of the Step	Scope of the Step
4. Compare and analyze needs identified in Task 4, Steps 1, 2, and 3, and identify critical shortages.	The needs projected in the first three steps of Task 4 will be compared.	Comparison of needs arrived at by the three methods will be made by occupational category regardless of type of employer, ownership, or service function.
5. Determine present health manpower requirements for the Indianapolis metropolitan area and estimate needs five years hence.	Present and future requirements for health manpower will be developed.	Particular consideration will be given needs estimated in selected health occupations in which critical personnel shortages exist or are expected to exist.
6. Determine educational and training requirements to meet present and projected manpower needs.	The educational and training requirements to meet present and projected manpower needs will be identified.	The productive capacities of existing programs will be compared with the need for health manpower in selected occupational categories. External sources of supply will be considered. Particular attention will be given to health occupations in which critical personnel shortages exist.
7. Prepare a plan for the development of educational and training programs to meet present and projected manpower needs.	The plan will establish priorities and be oriented to meet critical manpower shortages.	The plan will take into account program, staff, facilities, financial, and organizational requirements to meet current and projected health manpower needs for existing health occupational categories.
8. Prepare a detailed written critique of Task 4 of the study.		
9. Prepare detailed plans for Phase III of the study.		

EXHIBIT I (7)

PHASE III

TASK 5: IDENTIFY TASKS CURRENTLY BEING PERFORMED BY PERSONNEL PROVIDING DIRECT HEALTH SERVICES IN VARIOUS ORGANIZATIONAL SETTINGS

Step	Description of the Step	Scope of the Step
1. Identify direct health service tasks currently being performed by personnel*.	Primary tasks currently being performed by health personnel will be identified without regard for the occupational classification of those currently performing the tasks.	Tasks performed by health personnel working for at least three of each of the following types of employers will be analyzed: hospitals, by type such as general, special, psychiatric, long-term, short-term, and ownership; nursing homes, by type such as chronic, convalescent, and ownership; health and welfare agencies; industries; private medical practitioners; individual or group practice; and others.
2. Identify tasks which in the future may be performed by health personnel.	Identifiable major tasks which are (1) needed or conceivable as a result of social trends or technological changes which in the future may be best performed by health personnel will be identified or forecast, and (2) tasks currently being performed by nonhealth personnel but which should be performed by persons in health occupations will be identified.	Needed or conceivable health care or service tasks not currently performed by health personnel employed by each of the types of employers listed in Task 5, Step 1, will be identified.
3. Determine the nature of each task.	The nature of each task will be identified. Designations will be as follows: manual, clerical, semiskilled, skilled, professional, administrative, and executive. Terms will be defined.	The general nature of each task identified in Steps 1 and 2 above will be determined.
4. Determine the time per unit required to perform each task.	Time required to perform each task will be determined.	Unit of measurement may be laboratory test, patient day, patient visit, etc.

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*Direct health services will be identified in Task 1 during the detailed planning of the comprehensive study.

EXHIBIT I (8)

Step	Description of the Step	Scope of the Step
5. Determine the minimum education or training required to perform each task.	The minimum education or training required to perform each task will be identified. Classifications will be as follows: less than high school, high school, basic education beyond high school (study with no prerequisites beyond high school), intermediate education beyond high school (study with prerequisites beyond high school but not requiring a baccalaureate degree to show proficiency) and advanced education (study resulting in a baccalaureate or higher degree).	The minimum education and training required to perform each task identified in Steps 1 and 2 will be determined.
6. Group tasks which are of similar nature according to the nature of work and level of education or training required.	Tasks of a similar nature (manual, clerical, semi-skilled, skilled or professional, administrative and executive) will be grouped by the minimum level of education or training required (less than high school, high school, basic education beyond high school, intermediate education beyond high school, or advanced education beyond high school).	Each task identified in Steps 1 and 2 above will be classified according to the nature of the work and the level of education or training required.
7. Identify broad vocational fields in terms of existing occupational classifications.	The vocational fields of those performing each task will be identified. Tasks grouped in Step 6 will be analyzed in terms of present occupational classifications.	Step 6 will show the nature of work of each task and the minimum level of education or training required. Step 7 will identify the range in the nature of work and education and training required by those currently performing the tasks in terms of present occupational classifications.
8. Prepare a detailed written critique of Task 5 of the study.		

EXHIBIT I (9)

Step	Description of the Step	Scope of the Step
TASK 6: ARRANGE TASKS ACCORDING TO MINIMUM LEVELS OF KNOWLEDGE AND SKILL REQUIRED AND IDENTIFY NEW, RESTRUCTURED OR UNCHANGED SELECTED HEALTH OCCUPATIONS		
1. Identify direct health service tasks by level of education or training required by persons in each vocational field and occupational classification, as set forth in Step 7 of Task 5.	The appropriateness of work assignments will be analyzed by each occupational field. Tasks which by virtue of skill or knowledge required could better be assumed by persons in another occupational field will be reassigned.	Each task will be assigned to the occupational field that should be best qualified to perform the task by virtue of the level of education or training required.
2. Arrange tasks by occupational classification, vocational field, and minimum level of knowledge or skill required.	Tasks will be grouped according to occupational classification, vocational field, and minimum level of knowledge or skill required.	Tasks involving the delivery of direct health services will be grouped.
3. Identify new occupations.	New health occupations will be identified.	New occupations may result from major reassignment of tasks or from new or changing health service requirements.
4. Identify restructured health occupations.	Restructured health occupations will be described.	Reassignment of responsibility for tasks may require restructuring of selected existing health occupations.
5. Identify unchanged health occupations.	Unchanged health occupations will be described.	Existing health occupations may not require the reassignment of task responsibility.
6. Identify appropriate opportunities within all health occupation categories for "career ladder" advances.	"Career ladder" advancement opportunities will be identified.	Appropriate opportunities for individual advancement within health occupations consistent with skill, knowledge, and experience requirements will be identified.
7. Prepare a detailed written critique of Task 6 of the study.		

EXHIBIT I (10)

Step	Description of the Step	Scope of the Step
TASK 7: ESTIMATE MANPOWER NEEDS PER UNIT FOR SELECTED HEALTH OCCUPATIONS INCLUDING NEW, RESTRUCTURED OR UNCHANGED OCCUPATIONS		
1. Estimate current manpower needs based on new, restructured or unchanged occupations.	A comprehensive identification of health manpower needs based on the division of labor described in Task 6 will be prepared.	An estimate of the manpower needed for the delivery of the desired quantity of direct health care services will be developed. Inpatient, ambulatory and public health services will be considered. Current health service needs identified in Task 2 will be reviewed.
1.1 Estimate the quantity of health services the Indianapolis area currently needs.	Quantitative estimates of health service needs will be prepared.	Direct health care service requirements for a comprehensive range of community health services will be estimated. Estimates of health service needs identified in Task 2 will be reviewed and updated.
1.2 Estimate the time required to deliver services.	Time estimates will be developed by occupational classification and services to be provided.	Time estimates will be based on the delivery of needed direct health services by new, restructured and unchanged occupational types in various organizational settings.
1.3 Determine health manpower needs based on the projected quantity of services needed and time required for delivery.	Health manpower needs will be based on the volume of services to be provided and the approximate time required to deliver the services.	Estimates of the time required to deliver needed services will be developed and applied to the estimated demand for services of the population to be served.
2. Project future health manpower needs based on the expected volume of services needed.	Future health manpower needs will be projected.	Future needs will be projected at five-year intervals for 15 years and will be based on new, restructured and unchanged occupational types providing the needed volume of direct health care services to people in the Indianapolis area.
3. Prepare a detailed report on present and projected future health manpower requirements for selected health occupations and a plan of action to meet expected requirements.	A report on present and projected future health manpower requirements and a plan to meet expected needs will be prepared.	The report and plan will take into account findings and conclusions identified in Task 2 and the short-range plan developed during Task 4.
4. Prepare a detailed written critique of Task 7 of the study.		
5. Prepare detailed plans for Phase IV of the study.		

EXHIBIT I (11)

PHASE IV

TASK 8: SET FORTH A COMPREHENSIVE PLAN FOR THE EDUCATION AND TRAINING OF SELECTED OCCUPATIONAL TYPES TO MEET PRESENT AND PROJECTED MANPOWER NEEDS*

Step	Description of the Step	Scope of the Step
1. Identify educational or training programs which need to be modified.	Educational or training programs which need modification will be identified.	The reassignment of responsibility for specific tasks may require modification in educational or training programs for restructured occupational types.
2. Identify educational or training programs which should be discontinued.	Educational or training programs no longer needed will be identified.	Educational or training programs for occupational types altered drastically by the reassignment of tasks or in traditional occupational areas where services are no longer required will be discontinued.
3. Identify educational or training programs for selected new health occupations.	New educational or training programs will be identified according to the new categories of health occupations established in Task 6.	Specific new educational or training programs will be selected as pilot programs for new occupational categories.
4. Prepare a comprehensive plan for the development of educational and training programs for selected health occupations in the metropolitan area to meet current and projected health manpower requirements.	A specific over-all plan for educational and training programs will be developed for selected health professions. It will take into account the short-range plan completed in Step 6, Task 4.	The plan will include: (1) Philosophy, objectives and goals for the plan. (2) Plans for programs and services. (3) Plans for organization and staffing. (4) Facilities plans. (5) Financing plans. (6) Recommended arrangements among institutions preparing personnel for health professions. (7) A plan of action.
5. Prepare a detailed written critique of Task 8 of the study.		

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* Tasks 7 and 8 will be coordinated closely.

EXHIBIT I (12)

TASK 9: ESTABLISH AND CONDUCT PILOT EDUCATIONAL AND TRAINING PROGRAMS FOR PREPARATION OF PERSONNEL FOR SELECTED RESTRUCTURED OR NEW HEALTH OCCUPATIONS

Step	Description of the Step	Scope of the Step
1. Identify the curriculum scope and sequence of study required to prepare persons for selected restructured or new health occupational classifications.	The level, scope and sequence of specific courses of study required to prepare persons for selected occupational classifications which were identified in Steps 3 and 4, Task 6, will be determined. The possibility of utilizing core courses for more than one occupational classification will be studied.	The number and type of pilot programs will be determined. Criteria for the selection of specific programs will be developed by project staff.
2. Develop and conduct pilot educational and training programs to prepare persons for selected restructured or new occupational classifications.	Specific educational and training programs will be established to prepare persons for selected health professions. Programs will be conducted to: (1) provide in-service training for persons with the basic preparation, and (2) prepare persons with no education or training for health professions.	The following action will be taken as part of the step over a 2 1/2-year period. . Obtain cooperation of certification and/or licensing agencies in conducting pilot programs. . Identify a limited number of employers who will agree to realign assignments in accordance with Steps 3 and 4 of Task 6, and employ persons prepared for the assignments. . Ask employers to experiment with "career ladder" advances within health occupational fields. . Organize in-service training programs which will prepare a sufficient number of persons to meet staffing requirements of the pilot programs. . Develop instructional resources and media for instruction and training programs. . Recruit and select instructors and students for pilot educational and training programs.
3. Prepare a detailed written critique of Task 9 of the study.		

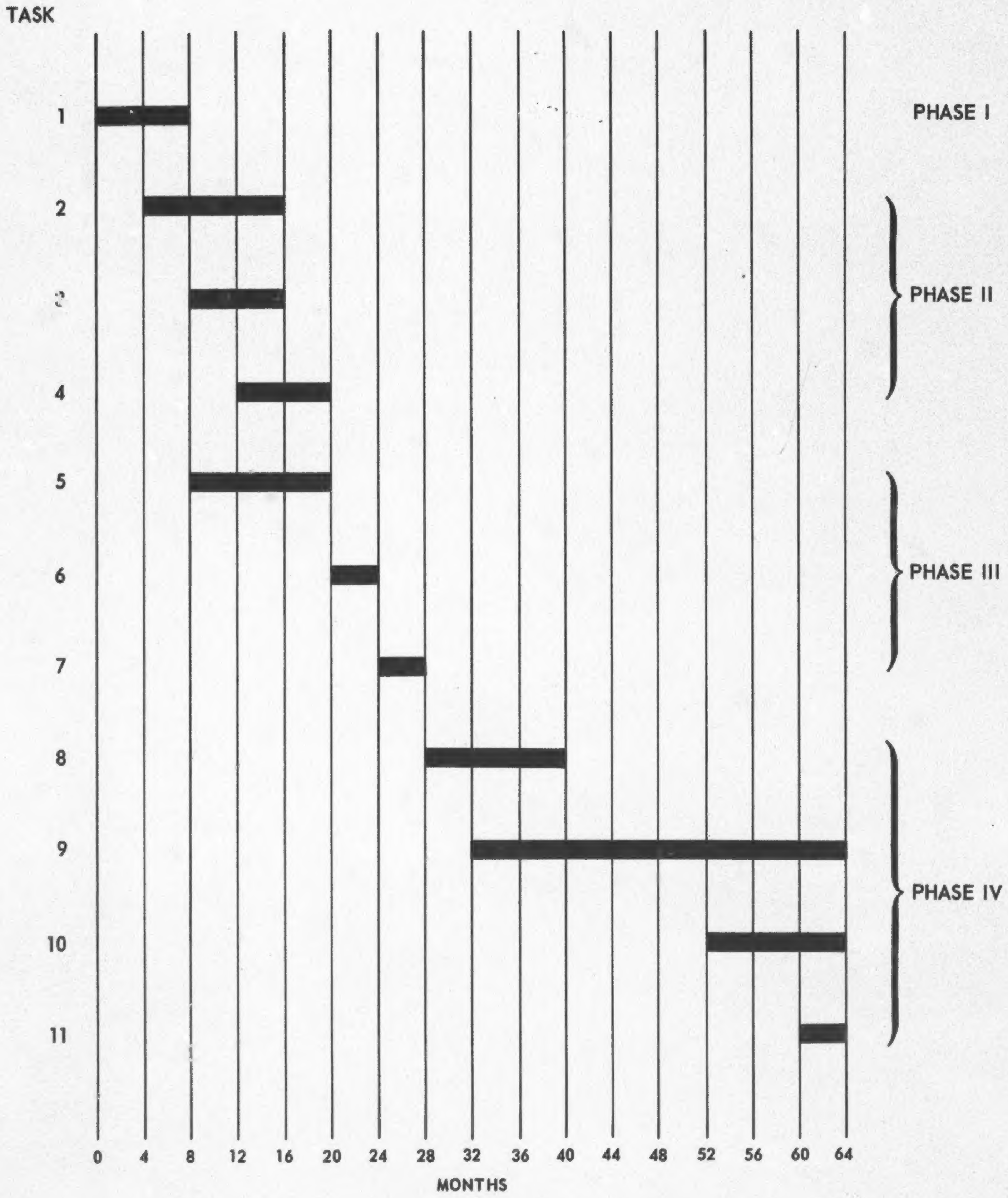
EXHIBIT I (13)

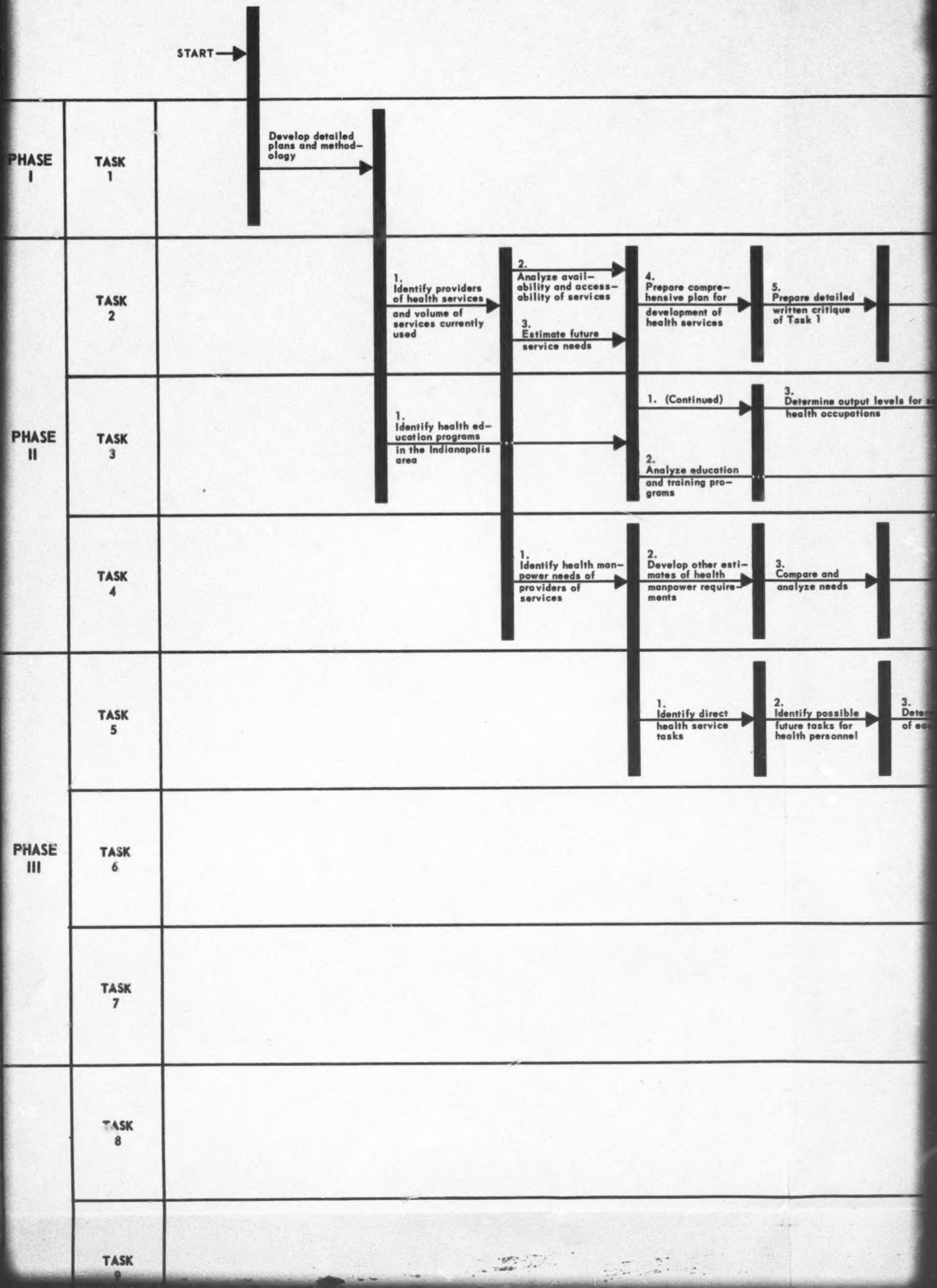
Step	Description of the Step	Scope of the Step
TASK 10: EVALUATE THE ESTABLISHED PILOT EDUCATIONAL AND TRAINING PROGRAMS AND DEVELOP A MECHANISM FOR CONTINUING EVALUATION OF ALL EDUCATIONAL AND TRAINING PROGRAMS		
1. Evaluate pilot educational and training programs.	Programs and the performance of persons who have been prepared for the selected health occupations will be analyzed.	Periodic evaluation will be made of the educational and training programs. As the need or opportunity for modifications in course content, methodology, or assignments is noted, necessary changes will be made.
2. Develop an appropriate mechanism for continuing evaluation of all educational and training programs.	A means of continuously evaluating educational and training programs will be developed.	Entry job requirements for new, restructured or unchanged occupational categories will be closely related to the curriculum of corresponding educational or training programs.
3. Prepare a detailed written critique of Task 10 of the study.		
TASK 11: PREPARE AND DISSEMINATE AN ANALYSIS OF THE COMPREHENSIVE STUDY		
1. Prepare a written report and evaluation of the entire study.		
2. Disseminate the report.		

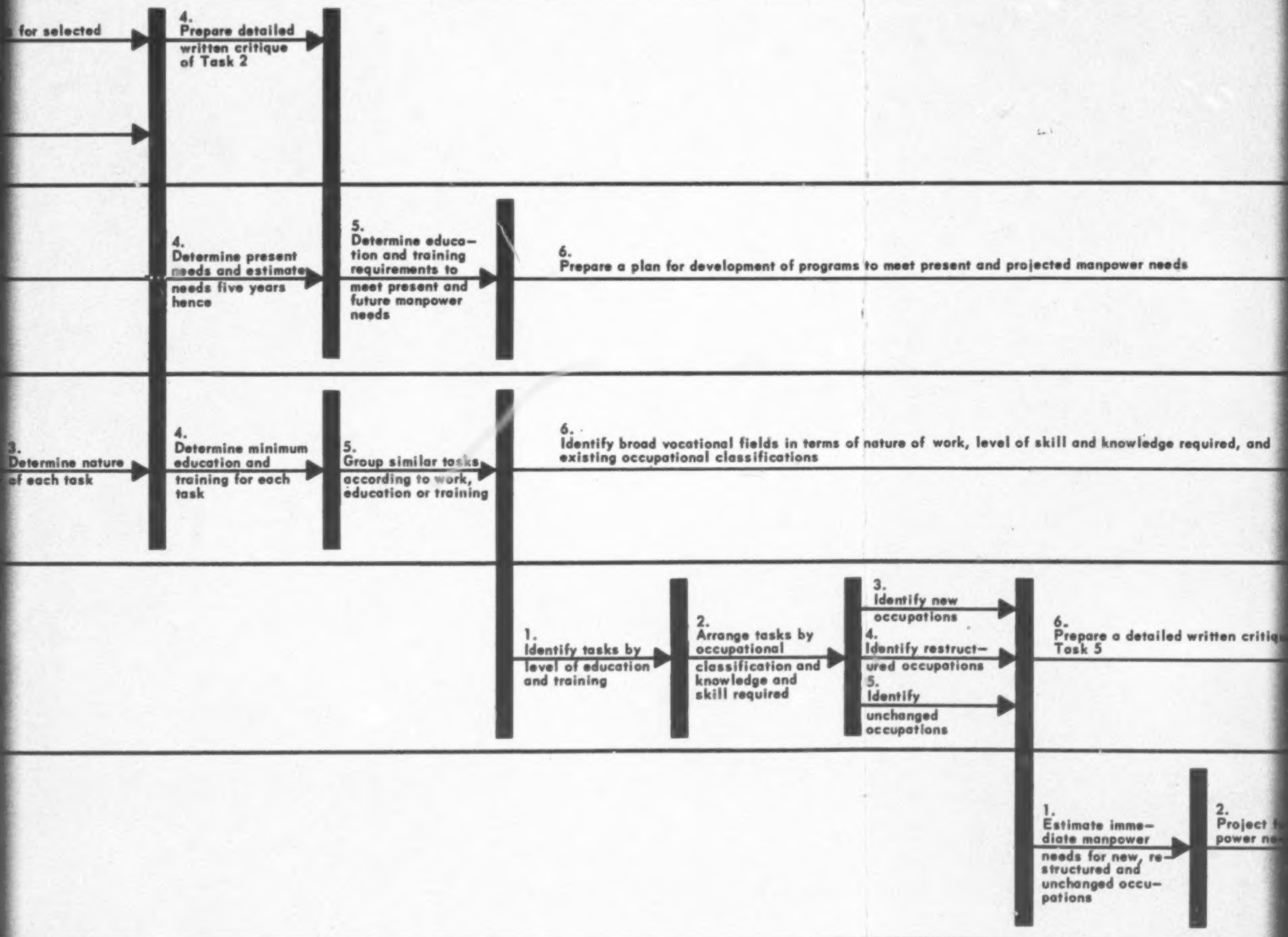
EXHIBIT II

INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

TIME PHASING BY MAJOR TASK FOR THE COMPREHENSIVE PROJECT




START
PHASE I
TASK 1
Develop detailed plans and methodology
PHASE II
TASK 2
1. Identify providers of health services and volume of services currently used
2. Analyze availability and accessability of services
3. Estimate future service needs
4. Prepare comprehensive plan for development of health services
5. Prepare detailed written critique of Task 1
TASK 3
1. Identify health education programs in the Indianapolis area
1. (Continued)
2. Analyze education and training programs
3. Determine output levels for
health occupations
TASK 4
1. Identify health manpower needs of providers of services
2. Develop other estimates of health manpower requirements
3. Compare and analyze needs
TASK 5
1. Identify direct health service tasks
2. Identify possible future tasks for health personnel
3. Deter
of ea
PHASE III
TASK 6
TASK 7
TASK 8
TASK 9



for selected
4. Prepare detailed written critique of Task 2
4. Determine present needs and estimate needs five years hence
5. Determine education and training requirements to meet present and future manpower needs
6. Prepare a plan for development of programs to meet present and projected manpower needs
3. Determine nature of each task
4. Determine minimum education and training for each task
5. Group similar tasks according to work, education or training
6. Identify broad vocational fields in terms of nature of work, level of skill and knowledge required, and existing occupational classifications
1. Identify tasks by level of education and training
2. Arrange tasks by occupational classification and knowledge and skill required
3. Identify new occupations
4. Identify restructured occupations
5. Identify unchanged occupations
6. Prepare a detailed written critiq
Task 5
1. Estimate immediate manpower needs for new, restructured and unchanged occupations
2. Project f
power ne

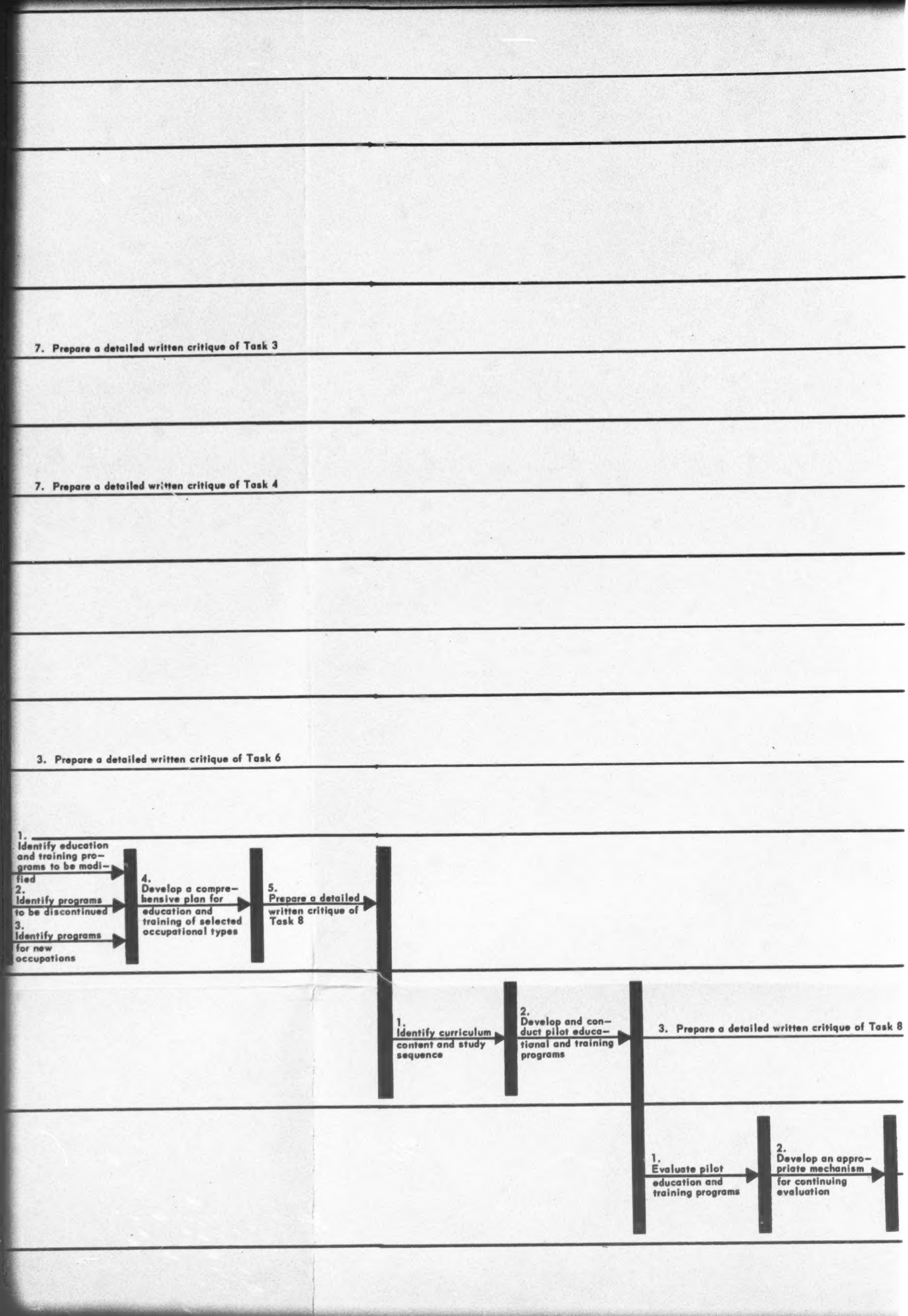
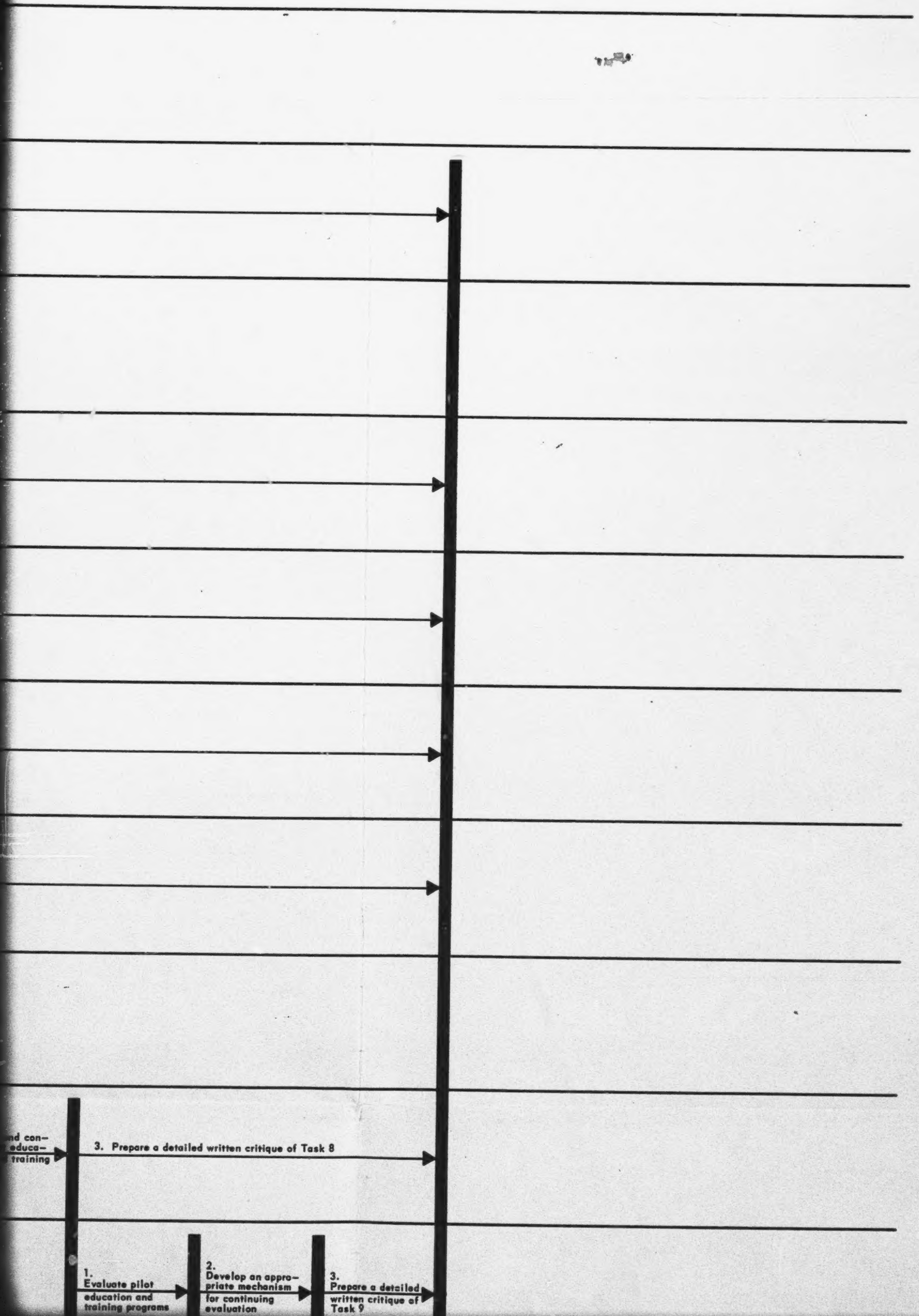

7. Prepare a detailed written critique of Task 3
7. Prepare a detailed written critique of Task 4
3. Prepare a detailed written critique of Task 6
1. Identify education and training programs to be modified
2. Identify programs to be discontinued
3. Identify programs for new occupations
4. Develop a comprehensive plan for education and training of selected occupational types
5. Prepare a detailed written critique of Task 8
1. Identify curriculum content and study sequence
2. Develop and conduct pilot educational and training programs
3. Prepare a detailed written critique of Task 8
1. Evaluate pilot education and training programs
2. Develop an appropriate mechanism for continuing evaluation

EXHIBIT III

INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

SCHEMATIC PLAN FOR THE COMPREHENSIVE PROJECT



nd con-
educa-
training
3. Prepare a detailed written critique of Task 8
1. Evaluate pilot education and training programs
2. Develop an appropriate mechanism for continuing evaluation
3. Prepare a detailed written critique of Task 9

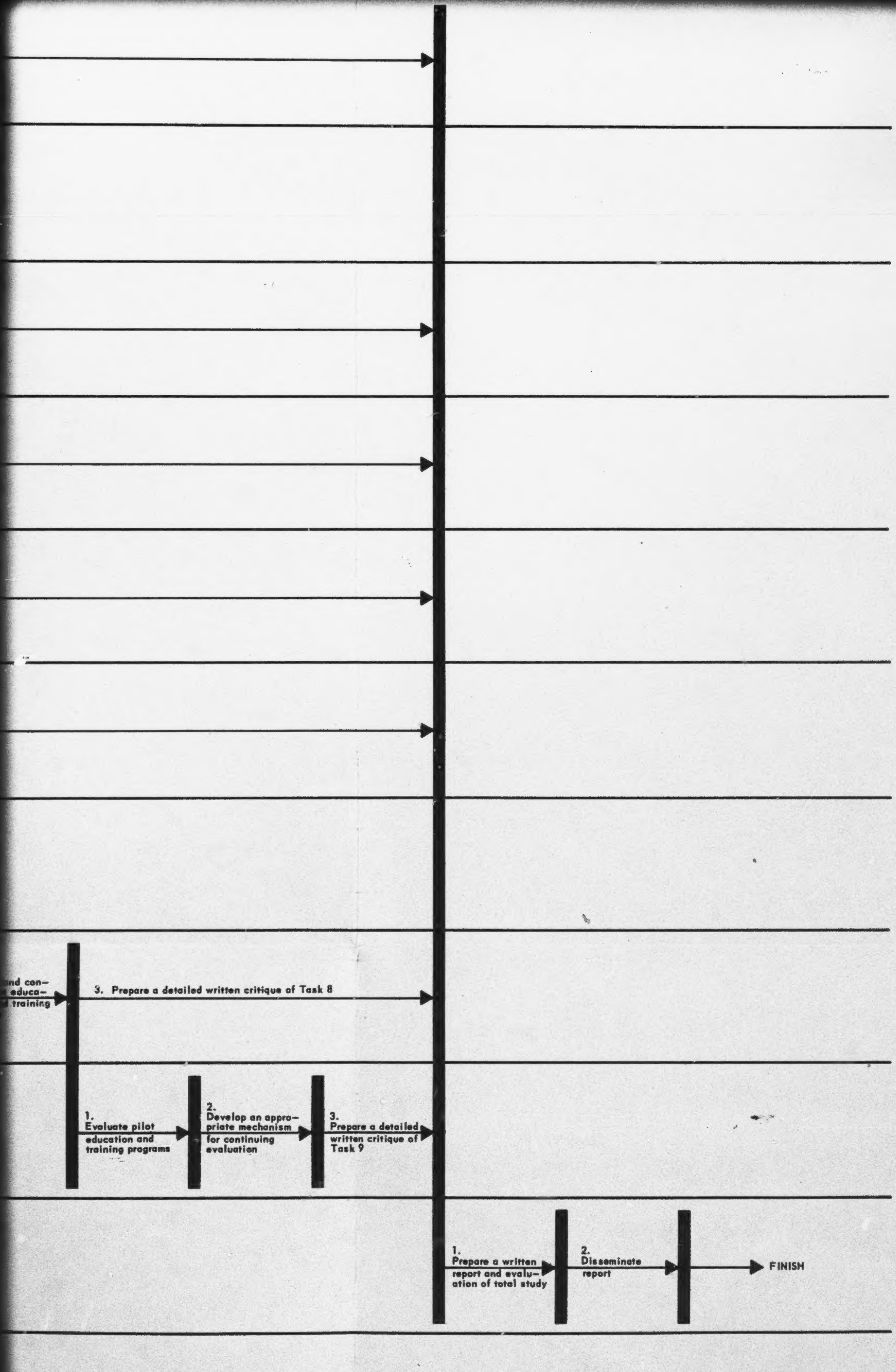

and con-
educa-
training
3. Prepare a detailed written critique of Task 8
1. Evaluate pilot education and training programs
2. Develop an appropriate mechanism for continuing evaluation
3. Prepare a detailed written critique of Task 9
1. Prepare a written report and evaluation of total study
2. Disseminate report
FINISH

EXHIBIT IV (1)

INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

PROPOSED
HEALTH MANPOWER PROJECT STAFFING *

TASK 1 - Project General Staff (Will participate as needed in all major tasks)

Coordinator of Research Activities
Project Director
Project Coordinators
    Behavioral Scientist
    Operation's Research Specialist
    Industrial Engineer
    Data Processing Specialist
Research Assistants
Technical Assistants
Statistician
Programmer
Secretaries

TASK 2 - Health System Analysts
(A team representative of several disciplines in the health field will assist the project general staff where necessary during Task 2)

- Medicine
- Dentistry
- Hospital Administration
- Nursing
- Public Health Administration
- Community Health Planning
- Social Work
- Health Economics
- Mental Health

TASK 3 - General Educational Specialist
Nurse Educator
Selected Allied Health Profession Educators
Curriculum Analysts

TASK 4 - Health System Analysts
(Disciplines needed are similar to those listed for Task 2)

Industrial Engineers (5)

---

* Staff will consist of IHDA permanent staff, community agency personnel, community committees, and consultants.

EXHIBIT IV (2)

TASK 5 - Senior Industrial Engineer
Industrial Engineers (5)
Selected Health Occupation Representatives
- Nurses
- Allied Health Professionals
- Public Health Professionals

General Educational Specialist

TASK 6 - Senior Industrial Engineer
Industrial Engineers (5)
Selected Health Occupation Representatives
- Nurses
- Allied Health Professionals
- Public Health Professionals

General Educational Specialist

TASK 7 - Health System Analysts
(Disciplines needed are similar to those listed for Task 2)
Industrial Engineer

TASK 8 - General Education Specialist
Nurse Educator
Selected Allied Health Profession Educators
Curriculum Analysts
Health System Analysts

TASK 9 - General Educational Specialists
Occupational Field Curriculum Planners
Faculty for the Pilot Programs

TASK 10 - Selected Study Participants

TASK 11 - Project General Staff

EXHIBIT V

INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

ESTIMATED TOTAL MAN-DAYS REQUIRED FOR THE PROJECT BY PHASE

PHASE I	900 Man-Days
PHASE II	3,488 Man-Days
PHASE III	1,660 Man-Days
PHASE IV	8,894 Man-Days
Total	14,942 Man-Days

EXHIBIT VI

INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

DETAILED STAFFING REQUIREMENTS FOR INITIAL 20-MONTH PERIOD OF THE PROJECT

		Staffing Requirements	Total Man-Days
PHASE I			900
	Task 1[*]	Coordinator of Research Activities	
		Project Director	
		Project Coordinators (4)[**]	
		Research Assistants	
		Technical Assistants	
		Statistician	
		Programmer	
		Secretaries	
PHASE II			3,488
	Task 2	Health System Analysts (3)	
		Health Specialists[***]	
	Task 3	General Educational Specialist	
		Nurse Educator	
		Selected Allied Health Educators	
		Curriculum Analysts	
		Task 2 Staff as Needed	
	Task 4	Task 2 and 3 Staff as Needed	
		Industrial Engineer	
PHASE III			1,000
	Task 5	Industrial Engineers (5)	
		Selected Health Occupation Representatives[****]	
		General Educational Specialist	
	Total Estimated Man-Days for Phases I, II, and Task 5 of Phase III		5,388

---

[*] Project staff in Phase I will participate as needed throughout the project.

[**] Coordinators will be part-time and provide special skills as required - i.e., industrial engineering, operations research, behavioral science, data processing.

[***] Special discipline representatives, such as physicians, dentists, nurses, etc., will work with the project staff as required.

[****] Including a physician, nurse, allied health professionals, public health professionals, and other health disciplines to be used as needed.

EXHIBIT VII

INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

ESTIMATED TOTAL PROJECT BUDGET FOR PROFESSIONAL TIME COSTS

PHASES I - IV

PHASE	I	(For detailed estimate, see Exhibit VIII)	$ 74,000
PHASE	II	(For detailed estimate, see Exhibit VIII)	697,600
PHASE	III	(For detailed estimate of Task 5, see Exhibit VIII)	332,000
PHASE	IV		1,778,800
Total Estimated Budget for Professional Time			$2,882,400

EXHIBIT VIII

INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

DETAILED BUDGET ESTIMATE OF PROFESSIONAL TIME COSTS FOR THE INITIAL 20-MONTH PERIOD OF THE STUDY

PHASE I		
Task 1		$ 74,000
PHASE II		697,600
Task 2	$376,400	
Task 3	140,800	
Task 4	180,400	
PHASE III		
Task 5		200,000
Total Estimated Cost of Professional Time for Phases I, II, and Task 5 of Phase III		$971,600

APPENDIXES

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APPENDIX I

LIST OF PERSONS ATTENDING PATHOLOGISTS' MEETING FOR HEALTH MANPOWER PLANNING

Dr. Lester Hoyt - Methodist Hospital

Dr. Lee Foster - St. Vincent's Hospital

Dr. Thomas Randall - University Heights Hospital and Marion County General Hospital

Dr. Robert A. McDougal - Winona Memorial Hospital

Dr. J. L. Arbogast - Indiana University Medical Center

Dr. David Rosenbaum - Veterans Administration Hospital

Dr. Harold Thornton - St. Francis Hospital

John R. Mote - Assistant Director and Director of Personnel
Methodist Hospital

G. Scott Olive - George S. Olive and Co.
Chairman, IHDA Study Committee on Financing Health Care Education

Fred E. Shick - Senior Vice President, Indiana National Bank
Chairman, IHDA Staffing of Health Care Facilities Committee

Forbes W. Polliard - Executive Director, Indianapolis Hospital Development Association, Inc.

Dr. H. Lawrence Wilsey - Booz, Allen & Hamilton Inc.

Dr. Clyde N. Carter - Booz, Allen & Hamilton Inc.

APPENDIX II

LIST OF PERSONS ATTENDING RADIOLOGISTS' MEETING FOR HEALTH MANPOWER PLANNING

Dr. Clifford Taylor - Community Hospital

Dr. John W. Beeler - Methodist Hospital

Dr. James C. Katterjohn - St. Francis Hospital
University Heights Hospital

Dr. Joseph Morton - St. Vincent's Hospital

Dr. Saverio Caputi, Jr. - Winona Memorial Hospital

Dr. J. A. Campbell - Veterans Administration Hospital

Dr. William Tosick - Marion County General Hospital

Dr. J. L. Arbogast - Indiana University Medical Center

G. Scott Olive - George S. Olive and Co.
Chairman, IHDA Study Committee on Financing Health Care Education

John R. Mote - Assistant Director and Director of Personnel
Methodist Hospital

Fred E. Shick - Senior Vice President, Indiana National Bank
Chairman, IHDA Staffing of Health Care Facilities Committee

Forbes W. Polliard - Executive Director, Indianapolis Hospital Development Association, Inc.

Dr. H. Lawrence Wilsey - Booz, Allen & Hamilton Inc.

Dr. Clyde Carter - Booz, Allen & Hamilton Inc.

APPENDIX III

LIST OF PERSONS INVOLVED IN THE DEVELOPMENT OF A QUESTIONNAIRE

John R. Mote - Assistant Director and Director of Personnel, Methodist Hospital Indianapolis

Elton TeKolste - Executive Director, Indiana Hospital Association

Kenneth I. Chapman - Acting Director, Community Service Council

James R. Dove - Research Director, Community Service Council

Miss Evelyn Toliver - Labor Market Analyst, Research and Statistics Division Indiana State Employment Commission

Eugene Selmanoff - Nursing Research Project, School of Nursing Indiana University, Indianapolis

James Hawkins - Nursing Research Project, School of Nursing Indiana University, Indianapolis

Forbes W. Polliard - Executive Director, Indianapolis Hospital Development Association, Inc.

Dr. Robert M. Oswalt - Booz, Allen & Hamilton Inc.

Robert A. Tschetter - Booz, Allen & Hamilton Inc.

INDIVIDUALS INVOLVED IN DISCUSSION AT AMERICAN HOSPITAL ASSOCIATION MEETING

Karl G. Bartscht	- Project Director, Hospital Systems Research Project University of Michigan, Ann Arbor
Richard Jelinek	- Hospital Systems Research Project University of Michigan, Ann Arbor
Robert Burton	- Projects Officer, Health Manpower Division Public Health Service
Barton R. Burkhalter	- Executive Director, Community Systems Foundation Ann Arbor
Harvey Scutter	- Director, Health Manpower Division, Public Health Service
David Hoover	- Statistician, Health Manpower Division, Public Health Service
Forbes Polliard	- Executive Director, Indianapolis Hospital Development Association
Clyde N. Carter	- Vice President, Booz, Allen & Hamilton Inc.
Robert A. Tschetter	- Consultant, Booz, Allen & Hamilton Inc.

APPENDIX V (1)

LIST OF INDIVIDUALS PRESENT FOR THE GENERAL REVIEW OF THE FEASIBILITY STUDY

James P. Seidensticker - District Representative for Congressman Andrew Jacobs, Jr.

Robert B. Herman - Economist, Division of Adult and Vocational Research U. S. Office of Education

Dr. Clyde Carter - Vice President, Booz, Allen & Hamilton Inc.

Robert A. Tschetter - Consultant, Booz, Allen & Hamilton Inc.

Dr. H. Lawrence Wilsey - Vice President, Booz, Allen & Hamilton Inc.

Karl Bartscht - Hospital Systems Research, School of Industrial Engineering University of Michigan

Dr. Richard C. Jelinek - School of Industrial Engineering, University of Michigan

Dr. J. L. Arbogast - Director, Division of Allied Health Sciences Indiana University Medical Center

Florence R. Brown - Assistant Executive Secretary and Counselor Indiana State Nursing Association

Spurling Clark - IHDA Staffing of Health Care Facilities Committee and Executive Committee

Ann Donavan - Hospital Administrative Consultant, Indiana State Board of Health

James R. Dove - Research Director, Community Service Council

Dr. I. Lynd Esch - President, Indiana Central College

Anne Gibbs - Executive Director, Visiting Nurse Association of Indianapolis

Jack A. L. Hahn - Administrator, Methodist Hospital

Don D. Hamachek - Assistant Administrator, St. Francis Hospital

Sarah Hathaway - Director, Indiana Health Careers

Dr. Jack W. Hickman - Director of Medical Education, Marion County General Hospital

Richard Holladay - Assistant Administrator, Community Hospital

Emily Holmquist - Dean, Indiana University School of Nursing

Dr. K. L. Kaufman - Dean, College of Pharmacy, Butler University

Dr. Frank Lloyd - Director of Research, Methodist Hospital

Marguerite F. Klein - R.N., Director, School for Practical Nursing of Indianapolis Public Schools

Dr. John J. Mahoney - Associate Dean, School of Medicine, Indiana University Medical Center

Dr. Robert McDougal - Pathologist, Winona Memorial Hospital

Dr. Earl W. Mericle - Chairman, IHDA Executive Medical Advisory Committee

Dr. Martin W. Meyer - Director of Planning and Evaluation
Indiana State Department of Mental Health

John R. Mote - Assistant Director, Personnel and Education
Methodist Hospital Chairman, IHDA Nursing Resources Committee

Dr. Henry G. Nester - Director, Division of Public Health
Health and Hospital Corporation of Marion County

Edward B. Newill - President, IHDA

Dr. Andrew C. Offutt - Indiana State Health Commissioner, Indiana State Board of Health

G. Scott Olive - C.P.A., George S. Olive and Company
Chairman, IHDA Health Manpower Financial Committee

Forbes W. Polliard - Executive Director, IHDA

Elton T. Ridley - Director of Hospitals, Indiana University Medical Center

Robert C. Riley - Vice President and Dean
Indiana Vocational Technical College

Jacob Roberts - Vice President, Indiana State AFL-CIO, IHDA Board of Directors

John Rowan - Assistant Director, Veterans Administration Hospital

Dr. Jack M. Ryder - Director, Purdue University, Indianapolis Regional Campus

Fred E. Shick - Chairman, IHDA Staffing of Health Care Facilities Committee

Sister Carlos - Administrator, St. Vincent's Hospital

Sister Marie - Coordinator, Marian College and St. Vincent's Hospital

Guy W. Spring - President, Indiana Blue Cross

Wayne A. Stanton - Director, Marion County Department of Public Welfare

Allen Teboe - Assistant Director, Indiana Health Careers

Elton TeKolste - Executive Director, Indiana Hospital Association

Harrison Ullman - Indianapolis Star-News

Donald L. Ciolli - Administrator, University Heights Hospital

J. Edward Weiland - Assistant Director, National Americanism Division
Education and Scholarship Programs, American Legion

Paul W. Wetzel - Director of Special Services, Indianapolis School Board Commission

COPY OF ARTICLE FROM INDIANAPOLIS STAR
September 27, 1966

CITY MAY BE MODEL IN TRAINING HEALTH, HOSPITAL TECHNOLOGISTS

Indianapolis may become a model for the nation in the training and career programming of professionals for the health and hospital technologies, a United States Office of Education economist said here yesterday.

Robert B, Herman, speaking at an Indianapolis Hospital Development Association luncheon meeting of community leaders, said his office is supporting an IHDA health manpower planning study in the hopes that this will produce a model for the development of programs in other cities.

Herman said studies already have indicated that American medicine will need within the next decade much larger numbers of such workers as nurses, medical records librarians and therapists.

One IHDA study indicates that Indianapolis will need to increase the number of available nurses from the present 2,600 to 5,100 by 1973.

Herman suggested that to meet these demands there may have to be substantial changes in the licensing and accrediting of health and hospital technologists.

John R. Mote, chairman of the IHDA nursing resources committee, said it may be necessary to develop careers and training programs for sub-professionals who would work under the direction and administration of nurses and other highly trained professionals.

A staff of sub-professionals would perform routine and non-specialized tasks, thus allowing the professionals to be used to the fullest extent of their training.

The Office of Education has made a $15,000 grant for an IHDA study that would lead to the development of comprehensive programs to cope with the shortage of workers in the health and hospital technologies.

LIST OF PERSONAL INTERVIEWS CONDUCTED

Elton TeKolste	-	Executive Director, Indiana Hospital Association
J. L. Arbogast	-	M.D., Director, Division of Allied Health Sciences Indiana University Medical Center
Dr. Alexander	-	Pathologist, Indiana University Medical Center
Arlene Wilson	-	Dietitian, Indiana University Medical Center
John Mahoney	-	Ph.D., Associate Dean, Indiana University College of Medicine (Dr. Mahoney also reviewed the questionnaire draft)
Jack Ryder	-	Ph.D., Director, Purdue University Extension, Indianapolis
Talmadge Rogers	-	Cummins Diesel, Columbus, Indiana (Administrative assistant to J. Erwin Miller, who is chairman of Presidential Health Manpower Commission)
Evelyn Toliver	-	Labor Market Analyst, Research and Statistics Division Indiana State Employment Commission
Florence Brown	-	Executive Secretary, Indiana State Nursing Association
Fred E. Shick	-	Senior Vice President, Indiana National Bank (Chairman, IHDA Staffing of Health Care Facilities Committee)
Edward W. Weiner	-	Assistant Secretary, American Hospital Association (Also director of Department of Labor - AHA Joint Manpower for Health Program)
Odin Anderson	-	Ph.D., Director, Health Information Foundation University of Chicago
Arthur G. Loftin	-	Executive Director, Marion County Medical Society, Indianapolis
Sarah Hathaway	-	Executive Secretary, Indiana Health Careers, Inc.
Andrew C. Offutt	-	Commissioner, Indiana State Department of Health (Dr. Offutt also reviewed the questionnaire draft)
Martin W. Meyer	-	Ph.D., Director, Division of Planning and Evaluation Indiana State Department of Mental Health
Dr. Maynard K. Hine	-	Dean, Dental School, Indiana University (Also president of American Dental Association)

Elton T. Ridley - Director of Hospitals, Indiana University Medical Center

James Gosman - M.D., President, Marion County Medical Society, Indianapolis

Kenneth E. Penrod - M.D., Provost, Indiana University Medical Center

Richard Holladay - Assistant Administrator, Community Hospital, Indianapolis

Scott Olive - C.P.A., Indianapolis

Norman Hipskin - C.P.A., Indianapolis

W. C. McLin - Administrator, Community Hospital, Indianapolis

Dr. I. Lynd Esch - President, Indiana Central College, Indianapolis

Monsignor Francis J. Reive - President, Marian College, Indianapolis

Donald R. Hampshire - M.D., General Practitioner, Indianapolis

F. J. N. Blasingame - M.D., Executive Vice President, American Medical Association

R. F. Manegold - M.D., Director, Division of Hospital and Medical Facilities
American Medical Association

Sister Mary Helen - St. Vincent's Hospital, Indianapolis

BIBLIOGRAPHY

BOOKS

Klarman, Herbert E. The Economics of Health.
New York: Columbia University Press, 1965.

McNerney, Walter J. Hospital and Medical Economics.
Volumes I and II. Chicago: Hospital Research and Educational Trust, 1962.

REPORTS AND PAMPHLETS

American Medical Association. The Graduate Education of Physicians.
Citizens Commission on Graduate Medical Education.
Chicago: American Medical Association, 1966.

Coggeshall, Lowell T. Planning for Medical Progress through Education.
Report submitted to the Executive Council of the Association of American Medical Colleges.
Chicago: Association of American Medical Colleges, 1965.

Kinsinger, Robert and Ratner, Muriel. Technicians for the Health Field: A Community College Health Careers Study Program. New York: University of the State of New York, State Education Department, 1966.

National Commission on Community Health Services. Health Is a Community Affair.
Cambridge: Harvard University Press, 1966.

United States Congress. Allied Health Professions Personnel Training Act of 1966.
Washington: Government Printing Office, 1966.

United States Department of Health, Education and Welfare. Medical Care, Health Status and Family Income. Washington: Government Printing Office, 1964.

United States Department of Health, Education and Welfare. U. S. Statistics on Medical Economics.
Report of U. S. National Committee on Vital and Health Statistics.
Washington: Government Printing Office, 1964.

United States Department of Health, Education and Welfare. Training Health Service Workers. The Critical Challenge. Proceedings of the Department of Labor - Department of Health, Education and Welfare Conference on job development and training for workers in Health Services. Washington: Government Printing Office, 1966.

United States Department of Health, Education and Welfare. Closing the Gap in Social Work Manpower.
Washington: Government Printing Office, 1966.

United States Department of Labor. Manpower Report of the President and a Report on Manpower Requirements, Resources, Utilization, and Training. Transmitted to the Congress.
Washington: Government Printing Office, 1966.

Reports and Pamphlets...

United States Public Health Service. Health Manpower Source Book: Manpower in the 1960's. Section 18. Washington: Government Printing Office, 1964.

United States Public Health Service. Health Manpower Source Book: Locations of Manpower in Eight Occupations. Section 19. Washington: Government Printing Office, 1965.

PERIODICALS

Amos, F. B. "Manpower predicament of the health department." American Journal of Public Health, 55 (Sept. 1965) 1437-42.

Bartscht, Karl. "Minute man computations form the basis for new staffing methodology." Hospitals (Journal of the American Hospital Association), 40 (March 16, 1966) 62-66 +.

Buerke, R. C. "Increasing role of paramedical personnel." Journal of Medical Education, 40 (Sept. 1965) 850-5.

Christopher, W. I. "Gaps between supply and demand. " Progressive Personnel Management, 2 (July 1960), 19-20.

"Closing the gaps in the availability and accessibility of Health Services (The 1965 Health Conference of the New York Academy of Medicine)," Bulletin of the New York Academy of Medicine, 41 (Dec. 1965).

Cosand, J. P. "Junior College: A source of personnel." Hospital Progress, 45 (July 1964) 40 +.

Crosby, E. L. "Health manpower in the U.S.: A review and a reappraisal." Trustee, 18 (January 1965) 6-12.

Donald, B. L. "Manpower planning:" The Hospital, 60 (Dec. 1964), 691-4.

Goerke, Lenor S. "Utilization, recruitment and training of health manpower." American Journal of Public Health, 55 (Oct. 1965), 1511-20.

Grace, H. A. "Systematic Perspective on health manpower." Journal of Health and Human Behavior, 6 (Winter, 1965), 234-9.

Harrell, G. T. "Trends in education, practice and organization of health services." Journal of the American Medical Association, 196 (April 1966), 334-8.

"Health educators wanted - and needed." American Journal of Public Health, 53 (June 1963), 978-9.

"Health manpower training." Hospitals, 38 (March 16, 1964), 45.

Levy, L. "Factors which facilitate or impede transfer of medical functions from physicians to paramedical personnel." Journal of Health and Human Behavior, 7 (Spring, 1966), 50-4.

Periodicals...

"Manpower in health." Progress in Health Services, 10, (May 1961),1-6.

"Medical manpower needs of 1970." New Physician, 10 (August 1961), 261-4.

Meek, P. G. "Health manpower: Annual administrative review." Hospitals (Journal of the American Hospital Association), 39 (April 1, 1965), 67 +.

Merten, Walter. "PERT and planning for health programs." Public Health Reports, 81 (May 1966), 449-54.

"More technician programs coming in junior colleges." American Journal of Nursing, 65 (Dec. 1965), 14 +.

Mowrey, F. W. "Changing face of medicine: Its impact on graduate training." Resident Physician, 11 (Dec. 1965), 99-105.

"New college of Allied health professions, Temple University Health Sciences Center, Philadelphia." Medical Annals of the District of Columbia, 35 (May 1966), 258.

O'Neill, M. J. "Non-MD assistants weighed as possible aid in medical manpower shortage." Medical World News, 6 (Dec. 17, 1965), 119.

Stensland, P. G. "Health professions and the changing community." Milbank Memorial Fund Quarterly, 43 (Oct. 1965), 439-49.

Stewart, W. H. "Manpower for better health services." Public Health Reports, 81 (May 1966), 393-6.

Wagner, C. J. "Needs for medical manpower." GP,32 (July 1965), 153-7.

Walsh, H. E. "Changing nature of public health." Journal of American Dietary Association, 46 (Feb. 1965), 93-5.

Weiner, E. W. "Training programs will help fill manpower gap." Hospitals (Journal of the American Hospital Association), 40 (June 1, 1966), 83 +.

West, M. D. "Manpower for the health field: What are the prospects?" Hospitals (Journal of the American Hospital Association), 37 (Sept. 16, 1966), 82-8.

Yarbrough, R. F. "Combined effort to develop educational opportunities vital to manpower needs." Southern Hospital, 34 (May 1966), 15 +.

THE OBJECTIVES AND RECENT PROJECTS OF THE INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION

The Indianapolis Hospital Development Association, Inc. was organized nearly 15 years ago. Its basic objectives are to:

- Determine the need for expansion or construction of health care facilities.
- Assign equitable and reasonable priorities in allocating funds to existing or planned institutions.
- Aid in the development of health care facilities by raising capital funds on a community-wide basis.
- Sponsor or conduct studies related to the development or improvement of health care services and facilities in the Indianapolis area.
- Support special projects which are in the best interests of the health system in Indianapolis.

In carrying out its basic objectives, IHDA through the years has:

- Conducted a successful $12 million capital building fund drive in 1952-1953.
- Provided funds to assist in the initiation of the first two-year nursing program in the Indianapolis area in 1953.
- Conducted a study in 1962 to ascertain the needs of area hospitals for future additional beds and health service programs.
- Updated, in 1965, the 1962 study of the needs of area hospitals for additional hospital beds.
- Established, in 1965, a priority of needs by which community funds collected by IHDA could be distributed among hospitals for additional hospital beds.
- Sponsored the organization of a not-for-profit corporation, United Hospital Services, to offer centralized laundry services for area hospitals.

Currently, IHDA is successfully completing a $15.5 million community campaign to marshall funds to help provide needed hospital facilities. In addition, it is:

- Conducting a study of the feasibility of implementing a centralized computer system for area hospitals. The project is financed by a Public Health Service grant.
- Beginning an area-wide planning project under another grant from the Public Health Service.

THE DEVELOPMENT OF NURSING EDUCATION IN THE INDIANAPOLIS METROPOLITAN AREA

By
Booz, Allen & Hamilton Inc.

____________________ Hospital

____________________ Completed by

____________________ Date

---

1. September enrollment data of nursing education programs in the Indianapolis metropolitan area.

Year	Number of Applications	Number of Applications Accepted	Number of Applicants Admitted to First Year Class	Total Number of Students Enrolled in All Classes
1955				
1956				
1957				
1958				
1959				
1960				
1961				
1962				
1963				
1964				

2. Ages of First Year Students

Age of First Year Students at Beginning of First Year	First Year Students								
	1955			1959			1964		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Under 18									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31-35									
36-40									
41-45									
46-50									
Over 50									

APPENDIX X (3)

3. Home Residence of First Year Students

Home Residence of First Year Students	First Year Enrollment									
	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Indiana (Total)										
Adams County										
Allen County										
Bartholomew County										
Benton County										
Blackford County										
Boone County										
Brown County										
Carroll County										
Cass County										
Clark County										
Clay County										
Clinton County										
Crawford County										
Daviess County										
Dearborn County										
Decatur County										
DeKalb County										
Delaware County										
Dubois County										
Elkhart County										
Fayette County										
Floyd County										
Fountain County										
Franklin County										
Fulton County										
Gibson County										
Grant County										
Greene County										
Hamilton County										
Hancock County										
Harrison County										
Hendricks County										
Henry County										
Howard County										
Huntington County										
Jackson County										
Jasper County										
Jay County										

Home Residence of First Year Students. . .

Home Residence of First Year Students	First Year Enrollment									
	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Jefferson County										
Jennings County										
Johnson County										
Knox County										
Kosciusko County										
LaGrange County										
Lake County										
LaPorte County										
Lawrence County										
Madison County										
Marion County										
Marshall County										
Martin County										
Miami County										
Monroe County										
Montgomery County										
Morgan County										
Newton County										
Noble County										
Ohio County										
Orange County										
Owen County										
Parke County										
Perry County										
Pike County										
Porter County										
Posey County										
Pulaski County										
Putnam County										
Randolph County										
Ripley County										
Rush County										
St. Joseph County										
Scott County										
Shelby County										
Spencer County										
Starke County										
Steuben County										
Sullivan County										

APPENDIX X (5)

Home Residence of First Year Students. . .

Home Residence of First Year Students	First Year Enrollment									
	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Switzerland County										
Tippecanoe County										
Tipton County										
Union County										
Vanderburgh County										
Vermillion County										
Vigo County										
Wabash County										
Warren County										
Warrick County										
Washington County										
Wayne County										
Wells County										
White County										
Whitley County										
Other States										
Alabama										
Alaska										
Arizona										
Arkansas										
California										
Colorado										
Connecticut										
Delaware										
District of Columbia										
Florida										
Georgia										
Hawaii										
Idaho										
Illinois										
Iowa										
Kansas										
Kentucky										
Louisiana										
Maine										
Maryland										
Massachusetts										

APPENDIX X (6)

Home Residence of First Year Students. . .

Home Residence of First Year Students	First Year Enrollment									
	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Michigan										
Minnesota										
Mississippi										
Missouri										
Montana										
Nebraska										
Nevada										
New Hampshire										
New Jersey										
New Mexico										
New York										
North Carolina										
North Dakota										
Ohio										
Oklahoma										
Oregon										
Pennsylvania										
Rhode Island										
South Carolina										
South Dakota										
Tennessee										
Texas										
Vermont										
Virginia										
Washington										
West Virginia										
Wisconsin										
Wyoming										

Other Countries (Specify)

4. Attrition of students enrolled in nursing education by number from date of admission. (For less than four-year programs, use only the required number of columns).

Year	Number Admitted	Number of Students Remaining at End of School Year				Number Graduated
		First Year	Second Year	Third Year	Fourth Year	
1955						
1956						
1957						
1958						
1959						
1960						
1961						
1962						
1963						
1964						

5. Maximum enrollment capacity and unused spaces in nursing education.

	1960	1961	1962	1963	1964
Maximum student capacity					
Total nursing students enrolled					
Unused spaces:					
1. Classrooms					
2. Laboratories					
3. Housing facilities					
Per cent unused spaces:					
1. Classrooms					
2. Laboratories					
3. Housing facilities					

6. Tuition charges and fees by year for students enrolled in nursing.

Year	Tuition	Fees
1955		
1956		
1957		
1958		
1959		
1960		
1961		
1962		
1963		
1964		

7. Scholarships provided nursing education students by source of funds.

	Number of Scholarships		Range of Scholarships		Average Annual Amount	
Year	Government	Private	Government	Private	Government	Private
1955						
1956						
1957						
1958						
1959						
1960						
1961						
1962						
1963						
1964						

8. Loan funds available to nursing education students by source of funds and year.

	Number of Loan Funds		Range of Loan Funds		Average Annual Loan Funds	
Year	Government	Private	Government	Private	Government	Private
1955						
1956						
1957						
1958						
1959						
1960						
1961						
1962						
1963						
1964						

9. Academic preparation of nurse faculty employed in nurse education programs.

	Year		
Academic Preparation	1955	1959	1964
No credit			
No degree, plus some credit			
Bachelor's			
Master's			
Doctorate			

10. Academic objective of nurse faculty currently enrolled in educational programs.

Academic Objective	Number Enrolled
No credit	
No degree or credit	
Bachelor's	
Master's	
Doctorate	

11. Projected nursing education facilities by year.

	Projected Maximum Capacity										
Facilities	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Classrooms											
Laboratories											
Dormitories											

Define method of computation:

12. **Projections of student enrollments and faculty requirements by year.**

	Enrollments					Required Faculty Preparation				
Year	First Year Students	Second Year Students	Third Year Students	Fourth Year Students	Total	No Degree	Bachelor's	Master's	Doctorate	Total
1965										
1966										
1967										
1968										
1969										
1970										
1971										
1972										
1973										
1974										
1975										

Define method of computation:

APPENDIX XI (1)

NURSING EDUCATION STUDY
INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

PROJECTED NURSING REQUIREMENTS BY EDUCATION QUALIFICATIONS AND BY YEAR

Institution or Agency________________________________
Person Completing__________________________________
Date Completed______________________

	Beds*	Average Daily Census*	FULL-TIME EQUIVALENT REGISTERED NURSES				Full-Time Equivalent L.P.N.'s	TOTAL Full-Time Equivalent Nurses
			Baccalaureate Degree	Associate Degree	Diploma	Total R.N.'s		
Employees, Beds, and Census, 11/1/64								
Budgeted Vacancies As of 11/1/64	☒	☒						
1965								
1966								
1967								
1968								
1969								
1970								
1971								
1972								
1973								
1974								
1975								

On an average, what per cent of nursing hours were given by part-time personnel during 1963?____________%
How many full- and part-time registered nurses were hired during 1963?____________.
How many full- and part-time registered nurses resigned or were released during 1963?____________.
How many full- and part-time licensed practical nurses were hired during 1963?____________.
How many full- and part-time licensed practical nurses resigned or were released during 1963?____________.

*Estimates based upon your latest information as furnished BA&H and I.H.D.A.

APPENDIX XI (2)

THE INDIANAPOLIS HOSPITAL DEVELOPMENT ASSOCIATION, INC.

NURSING SERVICE HOURS FOR OCTOBER 1964

SERVICE	Number of Beds per Service	Total Patient Days per Service	Per Cent of Occupancy per Service	Number of Admissions per Service	Nursing Personnel Hours (a) per Service			TOTAL Hours	Previous 12 Months Per Cent of Occupancy (d)
					R.N. Hours (b)	L.P.N. Hours	Auxiliary Hours (c)		
Medical-Surgical and Gyn. (e)									
Pediatrics									
Post Partum (f)									
Nursery									
Subtotal:									
Psychiatry									
Long-Term Care									
Subtotal:									
TOTAL BED SERVICES:									
	Number of Deliveries								Average Number of Deliveries per Month
Labor: Delivery - Recovery		xxxx	xxxx	xxxx					
Surgery - Recovery	xxxx	xxxx	xxxx	xxxx					
Emergency - Outpatient	xxxx	xxxx	xxxx	xxxx					
Nursing Administration	xxxx	xxxx	xxxx	xxxx					
Other Nursing Services (List):	xxxx	xxxx	xxxx	xxxx					
	xxxx	xxxx	xxxx	xxxx					
	xxxx	xxxx	xxxx	xxxx					
	xxxx	xxxx	xxxx	xxxx					
GRAND TOTAL:									

Instructions:

(a) Include hours charged by part-time and call personnel. Record only hours on duty; do not include absences, vacation, illness, orientation, etc.

(b) Include hours charged by supervisors and charge nurses. Supervisors' hours should be prorated when the supervisor is assigned to more than one office. Nursing directors' staff should be reported in nursing administration.

(c) Auxiliary hours should include aides, orderlies, ward clerks, etc., and hours of RN's or LPN's, students. Volunteers should not be included.

(d) Previous 12 months or last fiscal or calendar year.

(e) Include intensive care.

(f) Do not include labor and delivery personnel in Post Partum (OB).

Name of Institution____________________
Person Completing Form____________________
Date Completed_______________